

Effective Beginning Reading Programs: A Best-Evidence Synthesis

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Abstract

This article systematically reviews research on the achievement outcomes of four types of approaches to improving the beginning reading success of children in kindergarten and first grade: Reading curricula, instructional technology, instructional process programs, and combinations of curricula and instructional process. Study inclusion criteria included use of randomized or matched control groups, a study duration of at least 12 weeks, valid achievement measures independent of the experimental treatments, and a final assessment at the end of grade 1 or later. A total of 63 studies met these criteria. The review concludes that instructional process programs designed to change daily teaching practices have substantially greater research support than programs that focus on curriculum or technology alone. In particular, positive achievement effects were found for *Success for All*, *PALS*, phonological awareness training, and other programs focused on professional development.

From the first day of kindergarten to the last day of first grade, most children go through an extraordinary transformation as readers. If all goes well, children at the end of first grade know the sounds of all the letters and can form them into words, know the most common sight words, and can read and comprehend simple texts. The K-1 period is distinct from other stages of reading development because during this stage, children are learning all the basic skills of turning print into meaning. From second grade on, children build fluency, comprehension, and vocabulary for reading ever more complex text in many genres, but the K-1 period is qualitatively different in its focus on basic skills.

Success in beginning reading is a key prerequisite for success in reading in the later years. Longitudinal studies (e.g., Juel, 1988) have shown that children with poor reading skills at the end of first grade are unlikely to catch up later on, and are likely to have difficulties in reading throughout their schooling. It is in the early elementary grades where the gap in performance between children of different races first appears, and this gap is perhaps the most important policy issue in education in the U.S. On the fourth grade National Assessment of Educational Progress (NAEP, 2007), 43% of White children achieved at the “proficient” level on the National Assessment of Educational Progress, but only 14% of African American, 17% of Hispanic, and 8% of American Indian children scored at this level. Effective beginning reading programs are important for children of all backgrounds, but for disadvantaged and minority children and for children with learning disabilities, who particularly depend on school to achieve success, effective beginning reading programs are especially important.

In recent years, there has been a shift in policy and practice toward more of a focus on phonics and phonemic awareness in beginning reading instruction. Based in large part on the findings of the National Reading Panel (2000) and earlier research syntheses, the Bush

Administration's Reading First program strongly favored phonics and phonemic awareness, and a national study of Reading First by Gamse et al. (2008) and Moss et al. (2008) found that teachers in Reading First schools were in fact doing more phonics teaching than were those in similar non-Reading First schools. Yet outcomes were disappointing, with small effects seen on first grade decoding measures and no impact on comprehension measures in grades 1-3. Similarly, a large study of intensive professional development focusing on phonics found no effects on the reading skills of second graders (Garet et al., 2008). The findings of these large-scale experiments imply that while the importance of phonics and phonemic awareness in beginning reading instruction are well established, the addition of phonics to traditional basal instruction is not sufficient to bring about widespread improvement in children's reading. Other factors, especially relating to the quality of instruction, are also consequential.

Because of the great importance of this stage of development, there have been several reviews of research on beginning reading. Adams (1990) wrote an influential review, which concluded among other things that systematic phonics should be central to early reading instruction. Reviews by Snow, Burns, & Griffin (1998), by the National Reading Panel (NRP, 2000), by Torgerson, Brooks, & Hall (2006), and by the Rose Report in the U.K. (Rose, 2006) have reinforced the importance of phonics. The National Reading Panel (2000) pointed to five factors needed for success in early reading: phonemic awareness, phonics, fluency, vocabulary, and comprehension. These reviews, however, focused on variables associated with positive outcomes in beginning reading rather than on specific reading programs. The What Works Clearinghouse (2009), in its beginning reading topic report, reviewed research on reading programs evaluated in grades K-3. However, the WWC only reports program ratings, and does not include discussion of the findings or draw generalizations about the effects of types of

programs. Further, WWC inclusion standards applied in its beginning reading topic report include very brief studies (as few as 5 hours of instruction), very small studies (as few as 46 students), and measures of skills taught in experimental but not control groups (see Slavin, 2008). The Torgerson et al. (2006) review only included 12 randomized evaluations contrasting phonetic and non-phonetic approaches, but most of these were also brief (most provided 5 hours or less of instruction), had very small sample sizes, often used measures of objectives not taught at all in the control group, and were mostly supplementary rather than core approaches.

The present article reviews research on the achievement outcomes of practical initial (non-remedial) beginning reading programs for all children, applying consistent methodological standards to the research. It is intended to provide fair summaries of the achievement effects of the full range of beginning reading approaches available to educators and policy makers, and to summarize for researchers the current state of the art in this area. The scope of the review includes all types of programs that teachers, principals, or superintendents might consider to improve the success of their children in beginning reading: curricula, instructional technology, instructional process programs, and combinations of curricula and instructional process. The review uses a form of best evidence synthesis (Slavin, 1986), adapted for use in reviewing “what works” literatures in which there are generally few studies evaluating each of many programs (see Slavin, 2008). It is part of a series, all of which used the same methods, with minor adaptations. Separate research syntheses review research on remedial, preventive, and special education programs in elementary reading (Slavin, Lake, Davis, & Madden, 2009), upper-elementary programs (Slavin, Lake, Cheung, & Davis, 2008), middle and high school reading programs (Slavin, Cheung, Groff, & Lake, 2008), and reading programs for English language learners (Cheung & Slavin, 2005).

The syntheses of upper-elementary reading programs (Slavin et al., 2008a) and middle and high school reading programs (Slavin et al., 2008b) provide the closest background for the present review. The upper-elementary reading review identified 77 studies that met the inclusion standards. These were divided into four categories: reading curricula (core and supplementary textbooks), instructional technology, instructional process programs (such as cooperative learning), and combinations of curricula and instructional process. Effect sizes for curricula ($ES=+0.07$) and for instructional technology ($ES=+0.06$) were very low. Larger effect sizes ($ES=+0.23$) were found for instructional process programs, especially cooperative learning programs in which students help one another master reading comprehension skills in small teams or pairs. The sample-size weighted mean effect size for cooperative learning methods, specifically *Cooperative Integrated Reading and Composition (CIRC)* and *Peer Assisted Learning Strategies (PALS)*, was $+0.21$.

The secondary review covered grades 6-12, with most studies focused on grades 6-9. A total of 36 studies met the same criteria applied in the present review. It also concluded that programs designed to change daily teaching practices, providing extensive professional development in specific classroom strategies, had substantially greater support from rigorous experiments than did programs focusing on curriculum or technology alone. No studies of reading curricula met the inclusion criteria, and the sample size-weighted mean effect size for computer-assisted instruction programs was only $+0.10$. In contrast, the weighted mean effect size for various forms of cooperative learning was $+0.28$. Studies of mixed method programs (especially *READ 180*) that combine extensive teacher training and cooperative learning with computer activities also had relatively positive weighted effect sizes ($ES=+0.22$). The Cheung & Slavin (2005) review of research on (mostly elementary) studies of reading programs for ELLs

also found that effective programs were ones that emphasized professional development and changed classroom practices, such as cooperative learning and comprehensive school reform. Based on the findings of the earlier reviews, we hypothesized that in beginning elementary reading, programs focusing on reforming daily instruction would have stronger impacts on student achievement than would programs focusing on innovative textbooks or instructional technology alone.

Focus of the Current Review

The present review uses procedures similar to those used in the upper elementary and secondary reading reviews to examine research on initial (non-remedial) programs for beginning reading. The purpose of the review is to place all types of initial reading programs intended to enhance beginning reading achievement on a common scale, to provide educators and policy makers with meaningful, unbiased information that they can use to select programs most likely to make a difference with their students. The review emphasizes practical programs that are or could be used at scale. It therefore emphasizes large studies done over significant time periods that used standard measures, to maximize the usefulness of the review to educators. The review also seeks to identify common characteristics of programs likely to make a difference in beginning reading achievement. This synthesis was intended to include all kinds of approaches to early reading instruction, and groups them in four categories: reading curricula, instructional technology, instructional process programs, and combinations of reading curricula and instructional process. *Reading curricula* primarily encompass core reading textbooks (basals) and curricula, such as *Reading Street* and *Open Court Reading*. *Instructional technology* refers to programs that use technology to enhance reading achievement. This includes traditional

supplementary computer-assisted instruction (CAI) programs, in which students are sent to computer labs for additional practice. CAI in reading has been reviewed by Kulik (2003), Murphy et al. (2002), and E. Chambers (2003). Other instructional technology programs include *Reading Reels*, which provides embedded multimedia in daily lessons, and *Writing to Read*, which combines technology and non-technology small group activities. *Instructional process programs* rely primarily on professional development to give teachers effective strategies for teaching reading. These include programs focusing on cooperative learning and phonological awareness. Combinations of curricula and instructional process, specifically *Success for All* and *Direct Instruction*, provide specific phonetic curricula as well as extensive professional development focused on instructional strategies. Comprehensive school reform (CSR) programs were included only if they included specific beginning reading programs; for a broader review of outcomes of elementary CSR models, see CSRQ (2006) and Borman et al. (2003).

Methodological Issues Unique to Beginning Reading

While a review of research on beginning reading programs shares methodological issues common to all systematic reviews, there are also some key issues unique to this subject and grade level. The thorniest of these relates to measurement. In the early stages of reading, researchers often use measures such as phonemic awareness that are not “reading” in any sense, though they are precursors. However, measures of reading comprehension and reading vocabulary tend to have floor effects at the kindergarten and first grade level. The present review included measures such as letter-word identification and word attack, but did not accept measures such as auditory phonemic awareness. Measures of oral vocabulary, spelling, and language arts were excluded at all grade levels.

Another problem of early reading measurement is that in kindergarten, it is possible for a study to find positive effects of programs that introduce skills not ordinarily taught in kindergarten on measures of those skills. For example, until the late 1990's it was not common in U.S. kindergartens for children to be taught phonics or phonemic awareness. Programs that moved these then first-grade skills into kindergarten might appear very effective in comparison to control classes receiving little or no instruction on those skills, but would in fact simply be teaching skills the children would probably have mastered somewhat later.

Because of the difficulty of defining and measuring early literacy skills, multi-year evaluations that follow children at least through the end of first or second grade are of particular value. By the end of second grade, it is certain that control students as well as experimental students have been seriously taught to read, and it becomes possible to use measures of reading comprehension and reading vocabulary that more fully represent the goals of reading instruction, not just precursors. Multi-year studies solve the problem of early presentation of skills ordinarily taught later. If kindergartners are taught certain first grade reading skills, end of first grade or second grade measures should be able to determine if this early teaching was truly beneficial. For example, a study by Hecht & Close (2002) evaluated the *Waterford Early Reading Program* in kindergarten classes. Children in experimental and control classes experienced whole language instruction focused on language, not reading. Those in the *Waterford* group, however, also received 15 minutes a day of phonics and phonemic awareness. At the end of kindergarten posttest, the *Waterford* group scored much better than controls. But what does this mean? It may be that early exposure to phonics instruction has a lasting effect, but that cannot be determined until all children have been taught to read, with measures no earlier than the end of the first grade. Due to the unique nature of research on kindergarten-only programs, studies

whose final posttesting took place before spring of first grade are reviewed in a separate section of this article.

Review Methods

As noted earlier, the review methods used here are similar to those used by Slavin, Lake, Cheung, & Davis (2008a) and by Slavin, Cheung, Groff, & Lake (2008b), who adapted a technique called best-evidence synthesis (Slavin, 1986). Best-evidence syntheses seek to apply consistent, well-justified standards to identify unbiased, meaningful information from experimental studies, discussing each study in some detail, and pooling effect sizes across studies in substantively justified categories. The method is very similar to meta-analysis (Cooper, 1998; Lipsey & Wilson, 2001), adding an emphasis on narrative description of each study's contribution. It is similar to the methods used by the What Works Clearinghouse (2009), with a few important exceptions noted in the following sections. See Slavin (2008) for an extended discussion and rationale for the procedures used in all of these reviews.

Literature Search Procedures

A broad literature search was carried out in an attempt to locate every study that could possibly meet the inclusion requirements. Electronic searches were made of educational databases (JSTOR, ERIC, EBSCO, Psych INFO, Dissertation Abstracts) using different combinations of key words (for example, “elementary students,” “reading,” “achievement”) and the years 1970-2009. Results were then narrowed by subject area (for example, “reading intervention,” “educational software,” “academic achievement,” “instructional strategies”). In addition to looking for studies by key terms and subject area, we conducted searches by program

name. Web-based repositories and education publishers' websites were also examined. We attempted to contact producers and developers of reading programs to check whether they knew of studies that we had missed. Citations were obtained from other reviews of reading programs including the What Works Clearinghouse (2009) beginning reading topic report, Adams (1990), National Reading Panel (2000), Snow, Burns & Griffin (1998), Torgerson, Brooks, & Hall (2006), and August & Shanahan (2006), or potentially related topics such as instructional technology (E. Chambers, 2003; Kulik, 2003; Murphy et al., 2002). We also conducted searches of recent tables of contents of key journals. We searched the following tables of contents from 2000 to 2009: *American Educational Research Journal*, *Reading Research Quarterly*, *Journal of Educational Research*, *Journal of Educational Psychology*, *Reading and Writing Quarterly*, *British Educational Research Journal*, and *Learning and Instruction*. Citations of studies appearing in the studies found in the first wave were also followed up.

Effect Sizes

In general, effect sizes were computed as the difference between experimental and control individual student posttests after adjustment for pretests and other covariates, divided by the unadjusted posttest control group standard deviation. If the control group SD was not available, a pooled SD was used. Procedures described by Lipsey & Wilson (2001) and Sedlmeier & Gigerenzer (1989) were used to estimate effect sizes when unadjusted standard deviations were not available, as when the only standard deviation presented was already adjusted for covariates or when only gain score SD's were available. If pretest and posttest means and SD's were presented but adjusted means were not, effect sizes for pretests were subtracted from effect sizes for posttests. In multiyear studies, effect sizes may be reported for

each year but only the final year of treatment is presented in the tables. However, if there are multiple cohorts (e.g., K-1, K-2, K-3), each with adequate pretests, all cohorts are included in the tables.

Effect sizes were pooled across studies for each program and for various categories of programs. This pooling used means weighted by the final sample sizes. The reason for using weighted means is to maximize the importance of large studies, as the previous reviews and many others have found that small studies tend to overstate effect sizes (see Rothstein et al., 2005; Slavin, 2008; Slavin & Smith, in press).

Effect sizes were broken down for measures of decoding (e.g., word attack, letter-word identification, and fluency), vocabulary, and comprehension/total reading. In general, comprehension, which is the ultimate goal of reading instruction, is the most important outcome measure. Very few studies reported separate vocabulary scores, so the tables only show separate outcomes for decoding and comprehension (although vocabulary measures are included in totals).

Criteria for Inclusion

Criteria for inclusion of studies in this review were as follows.

1. The studies evaluated initial (i.e., non-remedial) classroom programs for beginning reading. Studies of variables, such as use of ability grouping, block scheduling, or single-sex classrooms, were not reviewed. Studies of tutoring and remedial programs for struggling readers are reviewed in a separate article (Slavin et al., in preparation).
2. The studies involved interventions that began when children were in kindergarten or first grade. Multi-year interventions that began in kindergarten or first grade were included

even if children were in grades 2-5 by the end of the study. As noted earlier, studies that began and ended in kindergarten are reviewed separately.

3. The studies compared children taught in classes using a given reading program to those in control classes using an alternative program or standard methods.
4. Studies could have taken place in any country, but the report had to be available in English.
5. Random assignment or matching with appropriate adjustments for any pretest differences (e.g., analyses of covariance) had to be used. Studies without control groups, such as pre-post comparisons and comparisons to “expected” scores, were excluded.
6. Pretest data had to be provided, unless studies used random assignment of at least 30 units (individuals, classes, or schools) and there were no indications of initial inequality. Studies with pretest differences of more than 50% of a standard deviation were excluded because, even with analyses of covariance, large pretest differences cannot be adequately controlled for as underlying distributions may be fundamentally different (Shadish, Cook, & Campbell, 2002).
7. The dependent measures included quantitative measures of reading performance, such as standardized reading measures. Experimenter-made measures were accepted if they were comprehensive measures of reading, which would be fair to the control groups, but measures of reading objectives inherent to the experimental program (but unlikely to be emphasized in control groups) were excluded. Studies using measures inherent to treatments, usually made by the experimenter or program developer, have been found to be associated with much larger effect sizes than are measures that are independent of treatments (Slavin & Madden, in press), and for this reason, effect sizes from treatment-

inherent measures were excluded. The exclusion of measures inherent to the experimental treatment is a key difference between the procedures used in the present review and those used by the What Works Clearinghouse (2009). As noted above, measures of pre-reading skills such as phonological awareness, as well as related skills such as oral vocabulary, language arts, and spelling, were not included in this review.

8. A minimum study duration of 12 weeks was required. This requirement is intended to focus the review on practical programs intended for use for the whole year, rather than brief investigations. Study duration is measured from the beginning of the treatments to posttest, so, for example, an intensive 8-week intervention in the fall of first grade would be considered a year-long study if the posttest were given in May. The 12-week criterion has been consistently used in all of the systematic reviews done previously by the current authors. This is another difference between the current review and the What Works Clearinghouse (2009) beginning reading topic report, which included very brief studies.
9. Studies had to have at least 15 students and two teachers in each treatment group.

Appendix 1 lists studies that were considered germane but were excluded according to these criteria, as well as the reasons for exclusion.

Limitations

It is important to note several limitations of the current review. First, the review focuses on experimental studies using quantitative measures of reading. There is much to be learned from qualitative and correlational research that can add depth and insight to understanding the effects of reading programs, but this research is not reviewed here. Second, the review focuses

on replicable programs used in realistic school settings expected to have an impact over periods of at least 12 weeks. This emphasis is consistent with the review's purpose in providing educators with useful information about the strength of evidence supporting various practical programs, but it does not attend to shorter, more theoretically-driven studies that may also provide useful information, especially to researchers. Finally, the review focuses on traditional measures of reading performance, primarily individually-administered or group-administered standardized tests. These are useful in assessing the practical outcomes of various programs and are fair to control as well as experimental teachers, who are equally likely to be trying to help their students do well on these assessments. The review does not report on experimenter-made measures of content taught in the experimental group but not the control group, even though results on such measures may also be of importance to some researchers or educators.

Categories of Research Design

Four categories of research designs were identified. *Randomized experiments* (R) were those in which students, classes, or schools were randomly assigned to treatments, and data analyses were at the level of random assignment. When schools or classes were randomly assigned but there were too few schools or classes to justify analysis at the level of random assignment, the study was categorized as a *randomized quasi-experiment* (RQE) (Slavin, 2008). *Matched* (M) studies were ones in which experimental and control groups were matched on key variables at pretest, before posttests were known, while *matched post-hoc* (MPH) studies were ones in which groups were matched retrospectively, after posttests were known. For reasons described by Slavin (2008), studies using fully randomized designs (R) are preferable to randomized quasi-experiments (RQE), but all randomized experiments are less subject to bias

than matched studies. Among matched designs, prospective designs (M) were preferred to post-hoc or matched designs (MPH). In the text and in tables, studies of each type of program are listed in this order (R, RQE, M, MPH). Within these categories, studies with larger sample sizes are listed first. Therefore, studies discussed earlier in each section should be given greater weight than those listed later, all other things being equal.

Research on Reading Curricula

The reading curricula category consists of textbooks for initial (non-remedial) reading instruction. It includes only 4 qualifying studies of core basal programs and 3 of supplemental curricula. Some professional development is typically provided with these textbooks, but far less than would be typical of instructional process approaches.

Table 1 summarizes descriptions and outcomes of all studies of textbook programs for beginning reading.

TABLE 1 HERE

Reading Curricula

Open Court Reading

Open Court Reading, published by SRA/McGraw Hill, is one of the most widely used basal textbook series in the US. From the 1960's to the late 1990's, *Open Court* was a

phonetically-based alternative to traditional basal textbooks, but in recent years other texts have also adopted more phonics as well. Still, *Open Court* remains distinctive in its use of phonetic readers in the early grades, a focus on explicit instruction of specific skills throughout the program, scripted teacher's manuals, and more teacher training and follow up than most texts provide. Teachers in the research sites received 2-3 days of initial training and extensive on-site follow-up from *Open Court* consultants. Typically, *Open Court* is used in 2.5 hour language arts blocks, meaning that schools using it may spend significantly more time on reading than would students in other programs, where 90 minutes is typical.

Borman, Dowling, & Schneck (2008) carried out a randomized evaluation of the 2005 version of *Open Court* Reading. They identified a total of 49 grade 1-5 classrooms in which *Open Court* had not been used previously, and randomly assigned classrooms within schools and grade levels to *Open Court* or control conditions. Control classes used a variety of traditional texts. *Open Court* teachers were asked to teach the program 2 ½ hours a day, while control teachers generally spent 90 minutes a day on reading. Not all *Open Court* classes spent the full 2 ½ hours, but most did, so additional time is confounded with any curricular effects. Also, the *Open Court* teachers received extensive training and follow-up beyond that ordinarily provided with the basal text.

At the first grade level, the focus of the present review, there were 9 *Open Court* classes (n=165) and 7 control classes (n=139). In light of the numbers of classes involved in first grade, this was considered a randomized quasi-experiment. The schools were located in Idaho, Florida, Texas, and Indiana and averaged 61% free lunch and 57% minority. *Open Court* and control classes were well matched on Terra Nova pretests and demographics. On Terra Nova posttests, adjusted for pretests, effect sizes were +0.06 for Reading Comprehension, +0.22 for

Reading Vocabulary, and +0.17 for Reading Composite. Using HLM, with students nested within classrooms, effects were significant ($p < .05$) for the entire grade 1-5 sample, but separate analyses were not reported for first graders.

A frequently cited evaluation of an earlier version of *Open Court* did not meet the standards of this review. Foorman, Fletcher, Francis, Schatschneider, & Mehta (1998) compared low-achieving first and second graders in *Open Court* and “implicit code” (i.e., non-phonetic) classes. Unfortunately, the initial comparability of the groups was not adequately established. Posttest analyses combined first and second graders, yet the proportion of each was quite different in *Open Court* (76% first) and implicit code (50% first). Further, there were sizeable pretest differences favoring the *Open Court* groups within grades.

Reading Street

Reading Street is a significant revision of the *Scott Foresman* basal textbook series, one of the most widely used in the U.S. The revision focused on increasing the emphasis on phonics and phonemic awareness, in line with requirements of No Child Left Behind. The publisher contracted with Magnolia Consulting (Wilkerson, Shannon, & Herman, 2006, 2007) to do two one-year randomized evaluations.

The Wilkerson, Shannon, & Herman (2007) evaluation involved a total of 18 first grade teachers, randomly assigned to *Reading Street* ($n=220$) or control ($n=167$) within schools in four sites around the U.S. This sample size made the study a randomized quasi-experiment. Overall, approximately 86% of students were White, 8% Hispanic, and 3% African American, and 26% received free or reduced price lunches. Control schools used a variety of textbooks, including *Macmillan Spotlight on Literacy*, *Harcourt Trophies*, *Harcourt Signatures*, and *Scott*

Foresman's 2000 and 2002 editions. On Gates MacGinitie Tests, adjusting for pretests, *Reading Street* students scored non-significantly higher than controls ($ES=+0.15$, n.s.).

A similar study of *Reading Street* by Wilkerson et al. (2006) involved 16 teachers of first grades in five schools. Two urban schools and a rural school were middle-class, non-Title I schools primarily serving White students, with 38-40% of students qualifying for free lunch. The remaining two schools were Title I schools with 67% of students qualifying for free lunch, and 80% of students were African American and 11% were Hispanic. The overall sample was 57% White, 25% African American, and 11% Hispanic, and 54% of students qualified for free lunch. The teachers were randomly assigned within schools to use *Reading Street* or to continue using other basal textbooks. Adjusting for pretests, individual Gates McGinitie scores were not significantly different ($ES = -0.02$, n.s.).

Scholastic Phonics Readers with Literacy Place

Scholastic Phonics Readers is a supplementary phonics instructional program designed as an optional addition to *Literacy Place*, Scholastic's basal reading text. *Scholastic Phonics Readers* incorporates phonetic texts to provide intensive phonics practice in the context of engaging stories, with themes and skills aligned to those in *Literacy Place*. The publisher provides a summary of a study by Schultz (1996) evaluating the combination of *Scholastic Phonics Readers* and *Literacy Place*. Superintendents in four California districts, Los Angeles, San Francisco, Pasadena, and San Bernardino, were asked to nominate pairs of similar elementary schools. In each, one member of each pair was randomly assigned to use the Scholastic materials, and then one class within each school was randomly selected to participate.

With eight classes and 301 first graders (n=162E, 139C), this is a randomized quasi-experiment. The groups were well-matched on the California Test of Basic Skills (CTBS) pretests. On CTBS posttests, effect sizes were +0.07 for reading, +0.11 for vocabulary, +0.21 for comprehension, and +0.23 for word analysis, for an overall mean effect size of +0.16.

Supplementary Curricula

Open Court Phonics Kit (as a supplement) and Phonics in Context

Barrett (1995) evaluated the *Open Court Phonics Kit* used as a supplement to a literature-based model that used *Houghton Mifflin, Wright, and Rigby* books as a base. *Open Court Phonics* provided teachers with extensive training and materials to teach phonics skills. This program was compared to a similar district-created *Phonics in Context* program and to a control group that just used the literature series without supplementary phonics. The study took place in the Riverside, California school district, with mostly middle class first graders. Five classes (n=78) were non-randomly assigned to *Open Court Phonics*, seven classes (n=87) to *Phonics in Context*, and four classes (n=83) to control, matching on Test of Early Reading Ability (TERA) pretests and demographics. Adjusting for the TERA pretests, posttests favored the two phonics supplements over the control treatment, but there were no differences between *Open Court Phonics* and the district *Phonics in Context* program. Adjusting for pretests, respective effect sizes for *Open Court Phonics* and *Phonics in Context* were +0.36 and +0.21 on TERA, +0.53 and +0.33 on Scholastic Achievement Test (SAT) Reading Comprehension, +0.47 and +0.40 for SAT Word Reading, +0.79 and +0.67 for Word Study Skills, and +0.62 and +0.47 for SAT Total Reading. Averaging SAT Total Reading and TERA, mean effect sizes were +0.49 for *Open Court Phonics* and +0.34 for *Phonics in Context*.

Elements of Reading: Phonics and Phonemic Awareness

Elements of Reading: Phonics and Phonemic Awareness, published by Harcourt, is a commercial supplemental resource that provides 48 weekly lessons to help 5-6-year-olds to master consonant and vowel sounds, vowel patterns, and other phonics skills. Teachers use the program 20 minutes each day in small groups. Under contract to the publisher, Apthorp (2005) carried out an evaluation in 16 first-grade classrooms in 6 schools, four of which were high-poverty (93% free lunch), 95% African American schools and two of which were middle class (22% free lunch) schools in which 78% of students were White, 13% African American, and 6% Hispanic. Eight classes were randomly assigned to *EOR* (n=126) and 8 to control (n=131). Control classes used standard *McGraw-Hill* or *Literacy Place* basals without supplemental phonics instruction. On three Early Reading Diagnostic Assessment (ERDA) scales, the mean effect size after adjusting for pretests was -0.09, and the mean of two Gates MacGinitie scales was -0.29, for a mean of -0.19. Patterns were similar in the high-poverty and middle-class sites.

Conclusions: Reading Curricula

Beginning reading curricula have been studied in just a few high-quality evaluations. There were seven studies, five of which used randomized quasi-experiments. These studies evaluated four core basal reading programs, *Open Court Reading*, *Reading Street*, and *Scholastic Phonics Readers with Literacy Place*, plus two supplemental programs, the *Open Court Phonics Kit*, and *Elements of Reading: Phonics and Phonemic Awareness*. With the exception of a small study of the *Open Court Phonics Kit*, none of the programs had effect sizes in excess of +0.20. The sample size-weighted mean effect size across all seven studies was +0.12,

with four studies of core phonics programs reporting a weighted mean effect size of +0.11 and three studies of supplementary programs with a weighted mean of +0.12. Effect sizes averaged +0.23 for decoding measures, but only +0.09 for comprehension/total reading measures.

Research on Instructional Technology

The effectiveness of instructional technology (IT) has been extensively debated over the past 20 years, and there is a great deal of research on the topic. Kulik (2003) concluded that research did not support use of IT in elementary or secondary reading, although E. Chambers (2003) came to a somewhat more positive conclusion.

Thirteen studies of instructional technology met the standards for the present review. These were divided into three categories. *Supplemental technology programs*, such as *Destination Reading*, *Plato Focus*, *Headsprout*, *Waterford*, *WICAT*, and *Phonics-Based Reading*, are programs that provide additional instruction at students' assessed levels of need to supplement traditional classroom instruction. *Mixed-method models*, represented by *Writing to Read*, are methods that use computer-assisted instruction along with non-computer activities as students' core reading approach. *Embedded multimedia*, represented by *Reading Reels*, provides video content embedded in teachers' whole-class lessons.

Descriptions and outcomes of all studies of instructional technology in beginning reading that met the inclusion criteria appear in Table 2.

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TABLE 2 HERE

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Supplemental CAI

Dynarski/Campuzano Study

Dynarski, Agodini, Heaviside, Novak, Carey, & Campuzano (2007) evaluated the use in first grade of five CAI reading programs, *Destination Reading*, *Waterford*, *Headsprout*, *Plato Focus*, and *Academy of Reading*. Outcomes for individual programs were not reported, so this is an evaluation of modern uses of technology in first grade reading in general, not of any particular approach. The study involved 43 schools in 11 districts. A total of 158 teachers (89E, 69C) and their 2619 students (1516E, 1103C) were randomly assigned within schools to CAI or control conditions. CAI students used the programs 94 minutes per week, on average. Control classes also often had computers, and used them for purposes such as reading assessment and practice, averaging 18 minutes per week. Experimental classes also made use of computers for similar purposes beyond the five programs, averaging 25 minutes per week.

Schools involved in the study were very diverse, and were located throughout the U.S. However, they were relatively disadvantaged, with 49% of students eligible for free or reduced-price lunches and 76% of schools receiving Title I. Overall, 44% of students were White, 31% African American, and 22% Hispanic.

Students were pre- and posttested on the SAT-9 and the Test of Word Reading Efficiency (TOWRE). There were no posttest differences on any subscales. Adjusting for pretests, SAT-9 posttest effect sizes were +0.06 (n.s.) for Sounds and Letters, +0.04 (n.s.) for Word Reading, and -0.01 (n.s.) for Sentence Reading, for an overall effect size of +0.03. On the TOWRE, effect sizes were +0.03 (n.s.) for Phonemic Decoding Efficiency, +0.02 (n.s.) for Sight Word Efficiency, and +0.04 (n.s.) overall. Averaging SAT-9 and TOWRE, the effect size was +0.04.

A smaller second cohort evaluation in which a subset of the Dynarski et al. (2007) teachers taught a new group of first graders was reported by Campuzano, Dynarski, Agodini, & Rall (2009). Four of the five programs were used in the second cohort: *Destination Reading*, *Waterford*, *Headsprout*, and *Plato Focus*. N's were 390E, 305C. The mean effect size was -0.06. The weighted mean effect size across the two cohorts was +0.02.

Unlike the first cohort report, the second-year report included data on the separate programs. These are presented in the next sections.

Destination Reading

Destination Reading published by Riverdeep, is a supplemental CAI program designed to improve phonics, decoding, reading comprehension, and other skills. Teachers introduce concepts to the whole class, and then students work individually with the software. The materials are generally used 20 minutes per day twice a week. Campuzano et al. (2009) evaluated *Destination Reading* in 12 schools in 2 urban districts (n=448E, 294C). 71% of students received free or reduced-price lunches, 35% were White, 34% were Hispanic, and 31% were African American. The effect size was +0.11(n.s.).

Headsprout

Headsprout, a supplemental CAI program, focuses on improving phonemic awareness, phonics, fluency, vocabulary, and comprehension. First graders work at their own paces through a series of 80 “episodes,” 30 minutes a day at least 3 times a week. *Headsprout* was evaluated in 12 schools in 3 districts (n=574E, 505C). 34% of students received free or reduced-price lunches,

81% were White, 13% African American, and 6% Hispanic. Controlling for pretests, SAT-10 effect sizes were +0.01 (n.s.) (Campuzano et al., 2009).

Plato Focus

Plato Focus is a complete reading curriculum designed to build phonics, phonemic awareness, fluency, vocabulary, and comprehension. Students spend 15 to 30 minutes daily on computer activities and 30-45 minutes on related print-based activities. The program was studied in 8 schools in 3 districts (n=327E, 291C). 48% of students received free- or reduced-price lunches, 68% were White, 27% Hispanic, and 5% African American. On adjusted SAT-10 posttests, the effect size was +0.03 (n.s.) (Campuzano et al., 2009).

Waterford Early Reading Program

The *Waterford Early Reading Program*, published by Pearson, is a supplemental self-paced CAI program designed to develop kindergartners' and first graders emergent literacy skills. Its activities include letter recognition, phonemic awareness, vocabulary and comprehension. Children play games and complete fill-in-the-blank writing activities, presented at the child's level of functioning. It is used for 17-30 minutes daily, 3 times a week.

The program was evaluated in 13 schools in 3 districts (n=689E, 466C). 47% of students received free or reduced-price lunches, 47% were White, 37% African American, and 16% Hispanic. The effect size on adjusted SAT-10 scores was +0.02 (n.s.) (Campuzano et al., 2009).

Cassady & Smith (2005) carried out a small matched evaluation of *Waterford* in a rural school in the Midwest. Three first grade teachers used *Waterford* about 20 minutes a day during regular reading periods, starting in Fall, 2001. The same teachers' classes the previous year

served as the control group. The n's were 46E, 47C. On Terra Nova Reading, controlling for pretests, the effect size was +0.71. Effects were particularly large for the children who had the lowest pretest scores.

Phonics-Based Reading

Phonics-Based Reading (PBR), created by Lexia, is computer software designed to help beginning readers learn word-attack skills. Children work independently at computer stations through an individualized, structured series of activities that progress from words in isolation to sentences and paragraphs. When children finish the *PBR* sequence, they move to a similar series called *Strategies for Older Students (SOS)*.

Macaruso, Hook, & McCabe (2006) evaluated *PBR* in ten first-grade classes in five urban elementary schools in the Boston area. More than 50% of students received free or reduced-price lunches, and 29% came from homes in which a language other than English was spoken.

One first grade class in each school was designated to use *PBR* (N=92) and one served as a control group (N=87). All classes used the same *Scott Foresman* or *Bradley* basals. *PBR* was used in a lab setting 2-4 times per week for 20-30 minutes. Experimental and control students were fairly well matched on Gates MacGinitie pretests given in November of first grade. On June posttests, adjusted for pretests, *PBR* students scored nonsignificantly better (ES=+0.20, n.s.).

The Literacy Center (Grade 1)

The Literacy Center (TLC), developed by LeapFrog, is a supplemental literacy program that uses technology to teach phonological awareness and phonics. Children use the program 20-

30 minutes daily, in addition to their core reading program. Teachers receive four days of training on TLC implementation. The publisher commissioned RMC Research Corporation (2004) to evaluate TLC. Six high-poverty schools in Las Vegas were randomly assigned to TLC or control conditions, making this a randomized quasi-experiment. This section reports only on first grades ($n=109E$, $86C$); kindergarten findings are reported later in this article. Children were pre- and posttested on the Gates MacGinitie and on four DIBELS scales. Adjusting for pretests, there were no differences on Gates ($ES = -0.04$, n.s.) or on DIBELS ($ES = -0.01$, n.s.), for a mean of -0.02 .

WICAT

WICAT was a traditional supplementary CAI program that provided individualized reading activities to strengthen students' skills. It consisted of graphics, animation, and high-quality audio content and was designed to complement and enhance in-class instruction in reading skills such as decoding, contextual analysis, and word identification.

Erdner, Guy, and Bush (1997) carried out a matched evaluation study in two elementary schools in north central Oklahoma. Participants were 85 first graders. The experimental group and the control group were well matched on school size, SES, gender, and pretest scores. Students in the treatment group received 60 minutes per week of computer-assisted instruction in reading for a full academic year. The control school used a traditional instruction method without any CAI support. After 1 year, students in both groups took the standardized CTBS test. Adjusting for pretests, the treatment school scored significantly better than the control school, with an effect size of $+1.05$.

The Reading Machine

The *Reading Machine* was an early phonics drill and practice program. Teachers could choose specific objectives and the program kept track of student progress. Abram (1984) conducted a 12-week randomized experiment on the use of the *Reading Machine* with 103 first-grade students randomly assigned to use the program for either phonics or mathematics, with each group serving as the control group for the other. An analysis of NCE gain scores on the Iowa Test of Basic Skills revealed no significant effects of the program ($ES = +0.19$, n.s.).

Mixed-Method Model

Writing to Read

Writing to Read (WTR), originally developed by IBM but now distributed by Bright Blue Software, is a computer-based program created to develop the writing and reading skills of K-1 children. It is based on the premise that children can learn to read by first learning to write anything they can say. Instruction is individualized, allowing students to work at their own pace. Students cycle through computer and non-computer tasks (such as listening to stories, writing stories, and working with the teacher in small groups).

Collis, Ollila, & Ollila (1990) carried out a small evaluation of *Writing to Read* in first grades in British Columbia, Canada. Children in two schools that used the program in 1985-86 ($N=53$) were compared to those in the same school in 1983-84 ($N=44$) who had similar scores on the Canadian Reading Tests. The posttests were Stanford Achievement Tests. Adjusted for pretests, the *Writing to Read* children scored higher on total reading ($ES=+0.47$); but there were no differences in word study skills ($ES=+0.07$), for a mean of $+0.27$.

Beasley (1989) evaluated *Writing to Read* with first graders in two middle class elementary schools in Athens, Alabama. There were 42 children in the *Writing to Read* school and 32 in the control school. Overall, 82% of the students were White, 18% African American. On the Stanford Early School Achievement Test (SESAT-2), adjusting for pretests, there were no significant differences on Sounds and Letters (ES=-0.09), Word Reading (ES=+0.15), or Sentence Reading (ES=-0.44). Controlling for Otis-Lennon School Ability Tests, SESAT posttests nonsignificantly favored the control group on Reading Comprehension (ES=-0.52) and Total Reading (ES=-0.44), for an average across the five measures of ES=-0.27. The mean effect size across the two qualifying studies of *Writing to Read* was +0.04.

Embedded Multimedia

Reading Reels

Reading Reels is a form of multimedia in which video content is embedded within teachers' lessons. It is used only within the *Success for All* comprehensive reform program (discussed later in this article). Brief animations, puppet skits, and live-action video segments, about 5 minutes daily in total, model for children and teachers beginning reading strategies.

B. Chambers, Cheung, Madden, Slavin, & Gifford (2006) evaluated *Reading Reels* in a year-long randomized experiment with 394 first graders in 10 high-poverty schools in Hartford, Connecticut. The schools served very disadvantaged populations that were approximately 60% Hispanic and 40% African American. The study compared first graders who learned to read using the *Success for All* program either with or without the embedded video components. In HLM analyses with school as the unit of analysis, controlling for pretests, the study found

positive individual level effect sizes for Word Identification ($ES=+0.15$, n.s.), Word Attack ($ES=+0.32$, $p<.05$), Passage Comprehension ($ES=+0.08$, n.s.), and DIBELS ($ES=+0.12$, n.s.), for a mean of $+0.17$.

B. Chambers, Slavin, Madden, Abrami, Tucker, Cheung, & Gifford (2008) carried out a randomized evaluation of high-poverty Hispanic schools in Los Angeles and Las Vegas. Both were multi-track, year-round *Success for All* schools. On entry to first grade, children were assigned at random to tracks (groups that follow a particular schedule of attendance and vacations). Then one track was randomly assigned to the experimental group ($N=75$) and one to the control group ($N=84$). Tutoring was provided in both conditions as part of *Success for All*, and in the experimental group tutored children received computer-assisted tutorials as well as *Reading Reels*. Children were pretested in September 2004 on the Woodcock Letter-Word Identification Scale, and posttested in the May 2005 on the Woodcock Letter-Word and Word-Attack measures and the Gray Oral Reading Test (GORT) Fluency and Oral Reading scales. Adjusted for pretests, posttest effect sizes were $+0.33$ ($p<.01$) for Letter-Word, $+0.28$ ($p<.05$) for Word Attack, $+0.28$ ($p<.05$) for GORT Fluency, and $+0.17$ for GORT Comprehension, an average effect size of $+0.27$. To disentangle effects of the computer-assisted tutoring intervention, effects were computed for non-tutored students. The mean effect size across the four measures was $+0.23$, indicating a positive effect for children who received only the *Reading Reels* intervention.

Conclusions: Instructional Technology

Across 13 qualifying studies, the weighted mean effect size for all technology approaches was only $+0.09$. A large, randomized study by Dynarski et al. (2007) and Campuzano et al.

(2009) found no impact of five current supplemental CAI models. This study's findings greatly affected the weighted mean of nine studies of supplementary CAI, estimated at +0.08. A very different approach to technology, *Reading Reels*, had modest positive effects in two large randomized experiments (weighted mean ES=+0.20). *Reading Reels* uses videos embedded in core instruction in *Success for All*. With this potentially promising exception, research on the use of technology in beginning reading instruction does not support use of the types of software that have been most commonly used. This conclusion agrees with findings for computer assisted instruction in the upper elementary grades (Slavin et al., 2009) and with the findings of a review of CAI by Kulik (2003).

Instructional Process Programs

Instructional process programs are methods that focus on providing teachers with extensive professional development to implement specific instructional methods. These fell into three categories. *Cooperative learning* programs (Slavin, 1995, 2009) use methods in which students work in small groups to help one another master academic content. *Phonological awareness training* is an approach that gives teachers strategies for building phonics and phonemic awareness skills. *Phonics-focused professional development models*, including *Reading and Integrated Literacy Strategies (RAILS)*, *Sing, Spell, Read, and Write*, *Ladders to Literacy*, and *Orton Gillingham*, provide training to teachers to help them effectively incorporate phonics, phonemic awareness, and other elements in beginning reading lessons. Note that programs combining instructional process approaches with innovative curricula, such as *Success for All* and *Direct Instruction*, are reviewed in a separate section of this article.

Descriptions and outcomes of all studies of instructional process programs meeting the inclusion criteria appear in Table 3.

TABLE 3

Cooperative Learning Programs

Classwide Peer Tutoring

Classwide Peer Tutoring, or *CWPT* (Greenwood, Delquadri, & Hall, 1989), is a cooperative learning approach in which children regularly work in pairs. They engage in structured tutoring activities and frequently reverse roles. The pairs are grouped within two large teams in each classroom, and tutees earn points for their team by succeeding on their learning tasks. A winning team is determined each week, and receives recognition.

A remarkable four-year longitudinal study by Greenwood et al. (1989) evaluated *CWPT*. In it, six high-poverty schools in Kansas City, Kansas, were randomly assigned to *CWPT* or control conditions. Because analysis was at the student level, this was a randomized quasi-experiment. The children and teachers began in Grade 1 and continued through Grade 4. A total of 123 students began in the experimental and control schools in first grade and continued through fourth grade, about half of the initial group.

At posttest, analyses of covariance indicated significantly higher achievement for the *CWPT* group on the reading section of the Metropolitan Achievement Test ($ES=+0.57$, $p<.001$). A two-year followup, when children were in sixth grade, found that *CWPT* students maintained their advantage over the control students ($ES=+0.55$, $p<.05$) (Greenwood, Terry, Utley, Montagna, & Walker, 1993).

Peer-Assisted Literacy Strategies (PALS)

Peer-Assisted Literacy Strategies, or *PALS*, is a technique in which children work in pairs, taking turns as teacher and learner, to learn a structured sequence of literacy skills, such as phonemic awareness, phonics, sound blending, passage reading, and story retelling. Children use a simple error-correction strategy with each other, under guidance from the teacher.

Mathes & Babyak (2001) carried out an evaluation of *PALS* over a 14-week period in a medium-sized district in Florida. Two main treatments, *PALS* and control, were compared (a third treatment was used for only 6 weeks). The students were 63% White, 36% African American. Ten first grade classes were randomly assigned to *PALS* (n=61) and 10 to control (n=49) in a randomized quasi-experiment. On Woodcock scales, adjusting for pretests, effect sizes averaged +0.51 for Word Identification, +0.92 for Word Attack, and +0.41 for Passage Comprehension, for a mean of +0.61. Effects were more positive for low achievers (ES=+0.61) and for average achievers (ES=+0.98) than for high achievers (ES=+0.25).

A small 20-week study by Calhoon, Otaiba, Greenberg, King, & Avalos (2006) evaluated *PALS* in three majority-Hispanic schools in a New Mexico border town. Overall, 68% of first graders were Hispanic and 32% were White; 75% received free lunches. Six classrooms within 3 Title I schools were randomly assigned to conditions, making this a randomized quasi-experiment (RQE). Students were pre- and posttested on the DIBELS. A total of 78 children (n=41 E, 37 C) completed pre- and posttests. Effect sizes were +0.58 ($p<.01$) for Nonsense Word Fluency, and 0.00 (n.s.) for Oral Reading Fluency, for a mean of +0.29. Patterns for Hispanic and non-Hispanic children varied by subscale, but overall effects were similar.

Calhoon, Al Otaiba, Cihak, King, & Avalos (2007) evaluated PALS in a 16-week experiment among first graders in 3 schools on the US-Mexico border. 79% were Hispanic, 28% were English language learners, and 88% received free lunches. The schools used a two-way bilingual education approach, in which students received roughly equal amounts of Spanish and English instruction throughout the day. Six classes were randomly assigned to *PALS* (n=43) or control (n=33), making this a randomized quasi-experiment. On DIBELS scales, adjusting for pretest differences, effect sizes were +0.51 ($p<.05$) for Nonsense Word Fluency, +0.20 (n.s.) for Letter Naming Fluency, and +0.29 ($p<.05$) for Oral Reading Fluency, for a mean of +0.33. Outcomes were more positive for ELLs on Nonsense Word Fluency and Letter Naming Fluency, but more positive for English proficient children on Oral Reading Fluency.

In a 16-week experiment, Mathes, Torgesen, and Allor (2001) evaluated PALS among first graders in a southeastern district. Three treatments were compared, but one, a combination of *PALS* and computerized phonological awareness training, had pretest differences with the control group of more than 50% of a standard deviation. Students were 65% White and 32% African American. Twelve classes were assigned to *PALS* (n=84) and twelve matched classes were assigned to a control condition (n=56). All students were pre- and posttested on Woodcock and TERA-2 measures. Total Woodcock effect sizes were +0.39 for Word Identification, +0.59 for Word Attack, and +0.56 for Passage Comprehension, and for TERA-2 they were +0.48, for a mean of +0.50. Effects were larger for low achievers ($ES=+0.65$) than for average achievers ($ES=+0.37$) or high achievers ($ES=+0.30$).

Mathes, Howard, Allen, & Fuchs (1998) evaluated PALS in a 16-week study in a southeastern city. Twenty first grade teachers in 6 schools participated. Assignment was partly random and partly matched, so this was considered a matched study. Three low achievers and

one average and one high achiever were randomly selected within each class for measurement, so the total sample was 48 children in 10 *PALS* classes and 48 children in 10 control classes. *PALS* procedures were used 3 times a week in 35-minute sessions focusing on sounds and words and partner read-alouds, while control classes were described as using traditional whole language models. On Woodcock scales, adjusted for pretests, posttest effect sizes were +0.21 for Word Identification, +0.54 for Word Attack, and +0.37 for Passage Comprehension, for a mean of +0.37. Effects were positive for low achievers (mean ES=+0.60) and average achievers (mean ES=+0.44) but not high achievers (mean ES=+0.08).

Across 6 small studies of *PALS*, the weighted mean effect size was +0.44, and adding in the CWPT study, the mean for seven small studies of cooperative learning was +0.46.

Phonological Awareness Training

Phonological Awareness Training: Norway

In a Norwegian study, Lie (1991) compared two phonological awareness training approaches in first grade in terms of effects on end of grades 1 and 2 reading. One treatment, called “sequential analysis,” focused on teaching children to identify phonemes in a word in sequence, and to blend phonemes. A second treatment, “positional analysis,” focused on teaching children to identify initial, final, and medial sounds in spoken words. A control group received no phonological awareness training. Ten first-grade classes in Halden, Norway were randomly assigned as follows: Sequential (n=3 classes, 52 students), positional (n=3 classes, 60 students), or control (n=4 classes, 96 students). The small number of classes makes this a randomized quasi-experiment. On standardized Norwegian reading tests, adjusted for pretests, effect sizes for

the sequential group were +0.56 ($p < .05$) at the end of grade 1 and +0.39 ($p < .10$) at the end of grade 2. Corresponding effect sizes for the positional treatment were +0.12 (n.s.) in first grade and +0.22 (n.s.) in second grade. Averaging across the two phonological awareness treatments, effect sizes were +0.34 in first grade and +0.30 in second grade.

Phonological Awareness Training: Denmark

Lundberg, Frost, & Petersen (1988) carried out an influential study in which Danish kindergartners were given a year-long training program in phonemic awareness. Children received daily 15-20 minute sessions of metalinguistic exercises and games. The 235 children in the experimental group were in 12 classes on a rural island, while 155 matched control children were in a rural area of the mainland. Control children did not receive any instruction in reading, as consistent with Danish policies.

At the end of kindergarten, the experimental children of course scored much better than controls on tests of phonological skills. Of greater interest was that at the end of Grades 1 and 2, reading scores on a Danish reading test favored the experimental group. Adjusting for pretest differences, effect sizes were +0.40 ($p < .10$) in first grade and +0.48 ($p < .05$) in second grade, showing a lasting impact of the phonological awareness training.

Phonological Awareness Training: Germany

Schneider, Küspert, Roth, Visé, & Marx (1997) reported two German studies of the long-term impact of phonological awareness training in kindergarten, replicating a study by Lundberg, Frost, & Petersen (1988) involving Danish kindergartners. In the first of the Schneider et al. studies, 205 children in 11 kindergarten classes in rural Germany received phonological awareness training 15-20 minutes daily for six months. Control children ($n=166$ in 12 classes)

were not taught reading at all, as consistent with German practice at the time. They were matched on pretests and demographics. Not surprisingly, the experimental group scored substantially better at the end of kindergarten. Of greater interest, German reading tests showed significant differences at the end of first grade ($ES=+0.29$, $p<.05$) but not at the end of second grade ($ES=-0.19$, n.s.).

In a replication in a different rural area, 191 children in 11 kindergarten classes were given phonemic awareness training and compared to 155 control children in 7 control classes, matched on pretests and demographics. Again, there were substantial phonemic awareness differences at the end of kindergarten, but in this study there were significant positive effects on a German reading measure at the end of grade 1 ($ES=+0.53$, $p<.05$) and at the end of grade 2 ($ES=+0.33$, $p<.05$).

Phonological Awareness Training: U.S.

Blachman and her colleagues developed and evaluated a phonological awareness training program in grades K-1. Children in two high-poverty (85% free lunch) schools in Syracuse, New York, received the experimental treatment, while two schools matched on SES, race, free lunch, and pretest scores served as controls. The experimental treatment began in February of kindergarten, and continued through the end of first grade. In kindergarten, children in experimental schools participated in heterogeneous groups of 4-5 taught by teachers and assistants. In first grade, the children in the experimental schools were divided into 11 homogeneous groups of 6-9, each taught by a different teacher. Both experimental and control classes received 30-minute lessons each day. The experimental group received lessons that reviewed phonemic awareness skills, introduced all letter names and letter sounds, and used

phoneme analysis and blending to decode phonetically regular words. Lessons also introduced high-frequency sight words, as well as reading of phonetically controlled readers and selected basal stories. In contrast, control classes used the traditional *Scott Foresman* basal reading program and students read trade books from their school library. Experimental teachers received 13 2-hour in-service sessions over the first grade year.

The main focus of the evaluation was on end-of-first grade measures (N=66 E, 62 C). The experimental group scored higher on all measures: Woodcock Word Identification (ES=+0.28), Decoding of Real Words (ES=+0.64), and Decoding of Non-Words (ES=+0.74), for a mean effect size of +0.55. A follow-up assessment at the end of second grade (n=58 E, 48 C) found that positive effects maintained. Effect sizes were +0.31 for Woodcock Word Identification, +0.34 for Decoding of Real Words, and +0.36 for Decoding of Non-Words, for a mean effect size of +0.33.

Across five phonological awareness training studies, weighted mean effect sizes at the end of first or second grade were +0.22.

Phonics-Focused Professional Development Models

Sing, Spell, Read, and Write

Sing, Spell, Read, and Write (SSRW) is a phonetic approach to beginning reading and writing instruction that uses songs, phonetic storybooks, and systematic, step-by-step development of word attack skills. Students' progress is carefully monitored and celebrated. Jones (1995) evaluated *Sing, Spell, Read, and Write* in a 7-month study in an Appalachian Mississippi elementary school. The first graders were 78% White and 22% African American, and 55% received free or reduced-price lunches. The *SSRW* students (n=50) were in two classes,

and two matched classes (n=47) received a “modified whole language” approach that incorporated a phonetic *Writing Road to Reading* text as well as big books and writing activities. On Gates MacGinitie Reading Comprehension tests, adjusting for pretests, the *SSRW* children scored somewhat higher (ES=+0.21).

Reading and Integrated Literacy Strategies (RAILS)

Reading and Integrated Literacy Strategies (RAILS) is a professional development approach primarily intended for high-poverty schools with many students at risk. It provides children in grades K-2 with a second 20-minute reading period each day to supplement their 60-90 minute regular reading, and provides teachers with extensive professional development focusing on explicit instruction in phonemic awareness, phonics, comprehension, and vocabulary. *RAILS* was evaluated by Stevens, Van Meter, Garner, Warcholak, Bochna, & Hall (2008) in three low-achieving schools in a small city in central Pennsylvania. Most students were White (94%), and 71% received free or reduced-price lunches. Two cohorts were followed over a two-year period, from K to 1 or 1 to 2. Two schools (n=62 K-1, 50 1-2) used *RAILS* and one matched school (n=67 K-1, 58 1-2) served as a control group. Students were pre- and posttested on the Metropolitan Achievement Test. Posttest effect sizes adjusted for pretests were +0.39 for the K-1 cohort and +0.43 for the 1-2 cohort, for a mean of +0.41.

Ladders to Literacy

Ladders to Literacy is a professional development program for kindergarten that focuses on phonics and phonemic awareness, rhyming, and letter sounds. Teachers receive extensive training and followup. Most *Ladders to Literacy* studies have taken place within the kindergarten

year, and are described later in this article under kindergarten-only studies. However, one study, by O'Connor (1996) included a follow-up assessment to the end of first grade and is reviewed here. Two *Ladders to Literacy* schools in a large urban district were compared to two schools matched on pretests, ethnicity, and special education rates. Overall, the schools were approximately 46% African American, 51% White. Analyses were presented for “typical learners” and “children at risk”, but there were too few “children at risk” in the control group to include in this review. N’s for typical learners were 64E, 41C. Controlling for Woodcock pretests, children in the *Ladders to Literacy* treatment scored higher than controls on Woodcock Letter Word Identification ($ES=+0.92$, $p<.01$). A one year follow-up at the end of first grade (O'Connor, Notari-Syverson & Vadasy, 1996) found that the differences were no longer statistically significant, and the effect size on Woodcock Letter-Word Identification was near zero ($ES=+0.02$), adjusting for kindergarten pretests. However, there were non-significant but notable effects on Woodcock Word Attack ($ES=+0.38$, n.s.), for a mean effect size of $+0.20$.

Orton Gillingham

Orton Gillingham is a structured, phonetic reading approach that uses multisensory teaching, emphasizing visual, auditory, kinesthetic, and tactile teaching strategies. An adaption of the *Orton Gillingham* method called *Alphabetic Phonics* was evaluated in four inner-city schools in the Southwest by Joshi, Dahlgren, & Boulware-Gooden (2002). Two first-grade classes ($n=24$) used *Alphabetic Phonics* and two ($n=32$) in the other schools used a standard Houghton Mifflin basal. The schools averaged 53% minority (mostly African American) and 81% free or reduced lunch. Adjusting for pretests, differences favored the *Alphabetic Phonics*

group on Word Attack ($ES=+0.28$, $p<.01$) and Gates MacGinitie Comprehension ($ES=+0.58$, $p<.02$), for an average effect size of $+0.43$.

Across five studies of phonics-focused professional development, the weighted mean effect size was $+0.32$.

Other Professional Development Models

Early Reading Research (ERR)

Shapiro & Solity (2008) designed a whole-class reading program in which children were taught as a whole class, rather than in small reading groups. Teachers were given professional development in structured, systematic methods of teaching phonemic awareness, phonics, fluency, comprehension, and oral reading. Children were assigned to three reading groups, as in traditional methods, but all received the same overall instruction with accommodations to their reading levels after the main lessons. The instruction was given in three 12-minute blocks dispersed over each day, and in addition children read to teachers or paraprofessionals 2-3 times per week.

A matched longitudinal experiment compared 6 high-poverty schools in England using *ERR* ($n=235$) to 6 matched schools in the same area ($n=199$). Control schools used the standard National Literacy Strategy lessons, which provides an hour each day of whole-class, small group, and individualized teaching. The NLS also focuses on phonics, so the main difference was the emphasis in *ERR* on whole-class teaching. The *ERR* and control methods were implemented over a 2-year period, from the beginning of reception (similar to kindergarten, average age at the beginning=4 years, 8 months) to the end of Year 1 (similar to first grade, average age at the end=7 years, 4 months). Adjusting for pretests, posttest effect sizes were $+0.62$ on the British

Achievement Scales Word Reading test, +0.52 on NFER-Word Reading, +0.59 on NFER Accuracy, and +0.41 on NFER Comprehension, for a mean of +0.54. A followup assessment one year later also found positive effects, averaging +0.46. All of these differences were statistically significant ($p < .05$ or better).

Four Blocks

The *Four Blocks* literacy model is a professional development approach in which teachers in grades 1-3 use non-ability-grouped, multi-level instruction. The four “blocks” of daily lessons are guided reading (comprehension), self-selected reading, writing, and working with words (decoding). Teachers receive extensive training in effective use of each of these elements.

A small study of the *Four Blocks* program was carried out by Scarcelli & Morgan (1999) in a Title I school in Virginia Beach, Virginia. Two intact classes of first graders using *Four Blocks* ($n=25$) were compared WITH two using a whole language model ($n=30$). The groups were fairly well matched on Gates MacGinitie pretests, but at posttest the *Four Blocks* students scored much higher on Gates tests (adjusted $ES=+0.56$, $p < .036$). Particularly positive results were reported for the lowest-achieving third of the classes.

Conclusions: Instructional Process Programs

Effects for instructional process programs were very positive. Across 17 studies, the weighted mean effect size for instructional process approaches in beginning reading was +0.37. The mean was +0.47 for decoding measures and +0.30 for comprehension/total reading measures. In particular, positive effects were seen on cooperative learning programs such as

Peer-Assisted Learning Strategies (PALS) and *Classwide Peer Tutoring* (mean ES=+0.46), phonics-focused professional development programs such as *Sing, Spell, Read, and Write*, *Early Reading Research*, and *RAILS* (mean ES=+0.43), and teaching of phonological awareness to kindergartners (mean ES=+0.22 on tests at the end of first or second grade).

Combined Curriculum and Instructional Process Approaches

Evaluations of programs that provide complete curricula as well as extensive professional development in classroom instructional processes are summarized in Table 4. These consist of two programs, *Success for All* and *Direct Instruction*.

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TABLE 4 HERE

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Success for All

Success for All (SFA) is a comprehensive school reform program designed to ensure success in reading for children in high-poverty schools (Slavin & Madden, 2009). It provides schools with a K-5 reading curriculum that focuses on phonemic awareness, phonics, comprehension, and vocabulary development, beginning with phonetically-controlled mini-books in grades K-1. Cooperative learning is extensively used at all grade levels. Struggling students, especially first graders, receive one-to-one tutoring. Children are frequently assessed on curriculum-based measures, and these are used to regroup children into reading groups according to current reading level, across grade lines. Extensive professional development and a full-time facilitator help teachers effectively apply all program elements. A Solutions Team

works with parents to help them support their children's achievement and to deal with issues such as attendance and behavior problems.

Evaluations of *Success for All* have been done by many researchers throughout the U.S. and elsewhere, but most have used a similar set of measures and procedures. Usually, kindergarten students in *SFA* and matched control schools are individually assessed on PPVT and/or Woodcock Letter-Word scales. They are then individually tested each spring, usually for multiple years, on the Woodcock Letter-Word, Word Attack, and Passage Comprehension scales, and (in most studies) the Durrell Oral Reading Test. Analyses of covariance compare experimental and control schools on each measure, controlling for pretests.

The largest and most important evaluation of *Success for All* was a three-year longitudinal cluster randomized experiment (Borman, Slavin, Cheung, Chamberlain, Madden, & Chambers, 2007). In this study, 35 Title I schools throughout the U.S. were randomly assigned to use *Success for All* either in grades K-2 or 3-5. The 3-5 group served as a control group for the K-2 schools. A total of 2108 K-2 children (1085 E, 1023 C) remained in the study schools all three years, 63% of those originally tested in kindergarten. Attrition was equal in the two treatment groups. Among the final sample, 72% of students received free lunches, and 57% of students were African American, 31% were White, and 10% were Hispanic.

Children were pretested on the PPVT and then individually tested on scales from the Woodcock Reading Mastery Test each spring for three years. Testers were not aware of the treatment assignments of each school. Data were analyzed using HLM, with children nested within schools. Using individual posttests adjusted for pretests, effect sizes were +0.22 ($p < .05$) for Word Identification, +0.33 ($p < .01$) for Word Attack, and +0.21 ($p < .05$) for Passage Comprehension, for a mean of +0.25.

Other than the Borman et al. study, all studies of *Success for All* have used matched designs. Correnti (2009) and his colleagues at the University of Michigan carried out the largest matched evaluation of *Success for All* over a 4-year period. The study compared three comprehensive school reform models, *SFA* (30 schools), *America's Choice* (28 schools), and *Accelerated Schools* (31 schools). These were compared to 26 control schools. The schools were located throughout the U.S. The schools were relatively disadvantaged, with 69% receiving free lunch, 52% African American, 22% White, 19% Hispanic, and 6% Asian. Two cohorts of students were followed from kindergarten to grade 3. A total of 831 students were in the *SFA* schools one or more years, and they were compared to a total of 2932 students in the other CSR and comparison schools, analyzed together. Students were pretested and then posttested each year on the Terra Nova. Propensity matching was used to ensure a close match between *SFA* and other students. Adjusting for covariates and mobility, the effect size for *SFA* students compared to all others was +0.43.

A large, longitudinal matched study of the five original *SFA* schools in Baltimore was reported by Madden, Slavin, Karweit, Dolan, & Wasik (1993; Slavin, Madden, Dolan, & Wasik, 1993). In this study, students in five inner-city Baltimore schools were individually matched with those in similar control schools. Individual matching was based on spring kindergarten CTBS or CAT scores administered by the district, and school matching was based on free lunch and historical achievement levels on district standardized tests. All children were African American, and approximately 95% of children qualified for free lunches.

Each spring, children in all *SFA* and control schools who had begun in their schools by first grade were individually assessed on the Woodcock Word Identification, Word Attack, and Passage Comprehension tests. Students in grades 1-3 were also given the Durrell Oral Reading

Test, while those in grades 4-5 were given the Gray Oral Reading Test. Testers were not made aware of the schools' treatment assignments. Children were followed and tested as long as they remained in their schools, even if they were retained or assigned to special education. Each year, an additional cohort was added.

A major report on the evaluation was published in the *American Educational Research Journal* after three years (Madden et al., 1993). At that point, the third grade cohort had been in *SFA* or control schools for three years, the second grade for two, and the first grade for one. Averaging across the four measures, the mean pretest-adjusted effect size was +0.57 for third graders ($n = 205E, 205C$), +0.60 for second graders ($n=220E, 220C$), and +0.51 for first graders ($n=246E, 246C$). All comparisons on all measures were statistically significant ($p<.001$) in individual-level ANCOVAs. Separate analyses for children whose kindergarten scores put them in the lowest 25% of their grades found more positive effect sizes for this subgroup: $ES=+0.98$ for third graders, $ES=+1.00$ for second graders, and $ES=+0.82$ for first graders.

Data collected two years later, when the oldest cohort was in fifth grade, revealed similar differences (Slavin et al., 1993). Averaging across the three Woodcock measures, the two Gray measures, and district-administered CTBS scores, the mean effect size for fifth graders, who were in their fifth year in *SFA*, was +0.48 ($n=128E, 159C$), and $ES=+0.45$ for fourth graders ($n=151E, 155C$). Averaging across three Woodcock scales, the Durrell, and CTBS, effect sizes were +0.49 for third graders ($n=151E, 187C$), +0.32 for second graders ($n=204E, 233C$), and +0.55 for first graders ($n=256E, 301C$). All comparisons were statistically significant ($p<.001$). As in the earlier analyses, effect sizes were larger for students in the lowest 25% at pretest: $ES=+1.03$ for fifth graders, +0.80 for fourth graders, +1.32 for third graders, +0.92 for second

graders, and +1.18 for first graders. Averaging across all grades, the mean effect size was +0.46 for all students and +1.05 for low achievers.

Beyond the achievement effects, Slavin et al. (1993) also reported a substantial difference in retention rates between *SFA* and control schools. By fifth grade, 34.9% of control students but only 11.2% of *SFA* students had been held back ($p<.001$). According to state data, third grade absences in 1993 were 8.8% in *SFA* schools and 13.5% in control, and among fifth graders the rates were 6.4% in *SFA*, 13.7% in control.

Borman & Hewes (2002) carried out a follow-up assessment of children in the first four Baltimore cohorts when they were in the eighth grade (if they had been promoted each year). Since *SFA* schools only went to the fifth grade, these students would have been out of the *SFA* program for at least 3 years. Analyses showed that former *SFA* students still scored better on CTBS than controls ($ES=+0.29$, $p<.001$). Effect sizes were similar for the lowest achievers ($ES=+0.34$). The *SFA* students were also significantly less likely to have been retained or assigned to special education.

Nunnery, Slavin, Madden, Ross, Smith, & Hunter (1996) carried out a large evaluation of *Success for All* in Houston. Two samples were evaluated: Students taught in English were in 46 *SFA* and 18 control schools, and students taught in Spanish were in 20 *SFA* and 10 control schools. Approximately 79% of students qualified for free lunches, and virtually all students were African American (48%) or Hispanic (52%). The schools were matched on free lunch, ethnicity, and pretest scores, the Language Assessment Scales (LAS).

Schools using *SFA* chose one of three levels of implementation: Minimal, medium, or high. The minimal level provided little tutoring for struggling students, used part-time facilitators, and did not have Solutions Teams. Full implementers had extensive tutoring from

certified tutors, had full-time facilitators, and had Solutions Teams. “Medium” schools fell between the other categories. The high implementation condition represents the full *SFA* program. Two English cohorts were studied, one that experienced *SFA* for two years (to second grade; n=595) and one that participated for one year (first grade only; n=682). Across three Woodcock measures and the Durrell Oral Reading Test, effect sizes for second graders (adjusted for pretests) averaged -0.30 for low implementers, -0.11 for medium implementers, and +0.16 for high implementers, for a mean of -0.08. For the first grade cohort, respective effect sizes were -0.25, +0.22, and +0.31, for a mean of +0.09. In the Spanish cohort (n=278), which experienced *SFA* only in first grade, effect sizes were +0.15 for low implementers and +0.26 for medium, for a mean of +0.21. Effects were more positive for African American than for Hispanic students. Averaging across all three cohorts, the sample size-weighted effect size was +0.05 across all levels of implementation, although the mean for the full program was ES=+0.23.

Livingston & Flaherty (1997) carried out a 2-year longitudinal evaluation of *Success for All* in multilingual schools in Modesto and Riverside, California. Three *SFA* schools were compared to three control schools matched on demographics, prior achievement, and approach to instruction for ELLs. Overall, the schools were 72% free lunch, and 43% Hispanic, 34% Anglo, 12% Asian, and 6% African American, and 35% were considered English Language Learners (ELLs). One *SFA* school and its matched control school taught students speaking many languages using a sheltered English strategy. The other two had many Spanish-dominant ELLs, and used a transitional bilingual approach. The analyses combined children across schools who fell into four categories: English-speaking students, Spanish bilingual students (taught and tested in Spanish), Spanish ESL students (taught and tested in English), and other ESL students. Because the numbers of Spanish ESL students was small, the last two categories are combined in

this review. There were three cohorts. One was followed through first grade, one through second grade, and one through third grade (but ESL and bilingual cohort data for third graders could not be used because higher-achieving students were transitioned out of their program in third grade).

Students were pretested on the English or Spanish version of the PPVT in kindergarten, and this score was used as a covariate in all analyses. The posttests for the English and ESL cohorts were Woodcock Letter-Word Identification, Word Attack, and Passage Comprehension, and the Durrell Oral Reading test. For the Spanish bilingual group, Spanish Woodcock scales were used.

For the English-speaking cohorts (n=272E, 184C), PPVT-adjusted effect sizes were +0.23, and +0.34 for the second-grade cohorts and +0.27 for the first-grade cohort, for a mean of +0.28. For the Spanish bilingual students (n= 87E, 93C), effect sizes were +1.40, +0.72, and +0.19 for the three cohorts, for a mean of +0.77. Means for ESL students (n=80E, 112C) for the three cohorts were +0.49, +0.47, and +0.32, for a mean of +0.43. Weighted mean effect sizes across all cohorts and all groups were ES= +0.49 (total n=439E, 389C).

Ross, Nunnery, & Smith (1996) evaluated *Success for All* in first grades in two schools in the Amphitheater District near Tucson, Arizona. Each school was matched with two control schools based on prior achievement, percent free lunch, and ethnicity. Overall n's were 169E, 371C. About 23% of children were Spanish-dominant and 13% were ELLs. Averaging across three Woodcock scales and the Durrell, adjusted for PPVT pretests, effect sizes averaged ES=+0.47 (p<.05).

Jones, Gottfredson, & Gottfredson (1997) carried out a three-year evaluation of *Success for All* in an African-American school in Charleston, South Carolina, in comparison to a school

matched on demographics and pretests. Three cohorts were followed. Cohort 1 (N=113E, 59C) was pretested in fall of first grade on the CSAB and then posttested in first, second and third grades. Cohort 2 (N=109E, 48C) was pretested in fall of kindergarten on CSAB and the Metropolitan and then posttested in K, 1, and 2. Cohort 3 (N=117E, 52C) was pretested in fall of K and then posttested in K and 1 only. In each case, individually-administered tests (Woodcock, Merrill, CSAB) as well as group administered tests (BSAP Reading, SAT Reading) were given as posttests, but in the final year for each cohort, only group-administered tests were given. It is important to note that Hurricane Hugo substantially damaged the SFA school and caused it to be closed for several months during Year 1 of the study.

Outcomes on various tests were quite diverse. Controlling for pretests and averaging across cohorts, kindergarten scores strongly favored the *SFA* school on the Woodcock scale ($ES = +0.98$). First grade scores were positive on two Woodcock and two Durrell scales ($ES = +0.20$), but not on group-administered SAT or BSAP scores ($ES = -0.03$), for a mean of $+0.07$. Second grade means ($ES = +0.10$) and the Cohort 1 third grade mean ($ES = -0.06$) were also small. Averaging across cohorts and grades, the mean effect size was $+0.27$. Students in the *SFA* school were also more likely than controls to be promoted from first to second grade ($ES = +0.35$) and from second to third grade ($ES = +0.24$).

B. Chambers et al. (2005) evaluated the reading achievement of kindergarten and first grade children in four *Success for All* and four matched control schools in mostly Hispanic minority communities in various locations in the U.S. The *Success for All* schools also used *Reading Reels*, an embedded multimedia approach, as part of daily instruction. The results indicate that students who experienced *Success for All* with *Reading Reels* ($n=311$) scored significantly higher than control students ($n=144$) on Woodcock Letter-Word, Word Attack, and

Passage Comprehension, controlling for Woodcock Letter-Word Identification pretests, with a mean effect size for kindergarten of +0.36 and for first grade of +0.20.

Ross, Smith, & Casey (1994) evaluated *SFA* in a rural school in Caldwell, Idaho, in comparison to a school using traditional basals with most students supplemented by *Reading Recovery* with struggling first graders. Three cohorts (K-1, K-2, and 1-3) were combined for analysis (n=223E, 147C), with a mean effect size of -0.10 on Woodcock and Durrell measures, controlling for PPVT.

Ross & Casey (1998b) studied *SFA* in 8 schools (151E, 205C) in Ft. Wayne, Indiana that were 75% free lunch and 45% minority (mostly African American). Students were pretested in kindergarten and posttested at the end of first grade. Mean effect sizes across Woodcock and Durrell measures were +0.25 (adjusting for pretests).

A three-year longitudinal evaluation of *SFA* was carried out by the Louisville, Kentucky school district (Muñoz & Dossett, 2004). Three *SFA* schools were matched with three controls on CTBS scores, poverty, mobility, and attendance. Approximately 85% of students received free lunches, and 57% were minorities. Third graders were compared after three years in *SFA* on district-administered CTBS-Reading scores. Sample sizes were 217E, 132C. Controlling for Stanford Diagnostic Reading Tests, *SFA* students scored significantly higher than controls (ES=+0.15, $p<.05$).

Dianda & Flaherty (1995) evaluated *Success for All* over a two-year period in three California schools. The schools were matched with similar control schools in their districts based on ethnicity, percent English language learners, free lunch, and prior state tests, and Peabody Picture Vocabulary Test scores at the beginning of kindergarten were nearly identical for *SFA*

and control schools. The overall sample was 42% Hispanic, 34% Anglo, and 32% ELL, with 72% of students qualifying for free lunch.

A focus of the study was on English language learners. Two of the schools had many Spanish-dominant ELLs and offered these students bilingual instruction, while the third school taught only in English and had many ELLs speaking a wide variety of languages. Control schools had similar distributions and had the same language policies as their SFA counterparts.

Overall, adjusting for PPVT pretests, students in the *SFA* schools ($N=131$) scored significantly higher than controls ($N=188$) on three individually-administered Woodcock scales: Letter-Word Identification ($ES=+0.46$), Word Attack ($ES=+0.36$), and Passage Comprehension ($ES=+0.45$). Averaging across the 3 Woodcock measures, effect sizes were positive for English speakers ($ES=+0.55$), Spanish bilingual students ($ES=+0.84$), Spanish-dominant students in sheltered English classes ($ES=+0.82$), and speakers of languages other than English in sheltered English ($ES=+0.11$). The overall effect size was $+0.42$.

Ross & Casey (1998a) evaluated *SFA* in four middle class schools in a suburb of Portland, Oregon. The schools were 12% to 17% minority and 11% to 21% free lunch. Two schools used *SFA* and were matched based on percent free lunch, ethnicity, and historical achievement levels with two comparison schools. Students in kindergarten and first grade were pretested on PPVT and posttested on three Woodcock measures and the Durrell Oral Reading Test. Sample sizes for kindergarten were 156E, 109C, and for first grade they were 156E, 160C. On average, adjusted scores showed no differences at kindergarten ($ES=+0.07$) or first grade ($ES=-0.01$).

Ross, Smith, & Casey (1997) evaluated *Success for All* over a 2-year period in Clarke County, Georgia. Two *SFA* schools were matched with one control school based on student

demographics and achievement levels. The schools were lower to lower-middle class, with 27% to 45% African Americans and 12% Hispanics. Students were pretested on PPVT then posttested on three Woodcock scales and Durrell Oral Reading. Two cohorts had been in *SFA* in K-1 (94E, 41C) or 1-2 (106E, 40C). Adjusted effects on the four individually administered measures were +0.27 for the K-1 cohort but only +0.03 for the 1-2 cohort, for a mean of +0.15.

Ross, Smith, & Casey (1995) carried out a 3-year evaluation of *Success for All* in two Title I schools in Ft. Wayne, Indiana. Three cohorts of students were followed. One was pretested on the PPVT in fall of kindergarten and posttested in spring of second grade (N=59T, 47C), one was pretested in K and posttested in third grade (N=54E, 20C), and one was pretested in fall of first grade and posttested in fourth grade (N=45E, 32C). Averaging across the Woodcock Word Identification, Word Attack, and Passage Comprehension and Durrell Oral Reading, effects were near zero for second grade (ES=+0.10), third grade (ES=-0.10), and fourth grade (ES=0.00), for a mean ES=0.00.

Casey, Smith, & Ross (1994) evaluated *Success for All* in three high-poverty African American schools in Memphis. Individual first graders in each school (total n=116) were matched with those in a single control school (n=73) based on individually administered Woodcock Letter Identification scores. At posttest, adjusted for the Letter ID scores, effect sizes averaged ES=+0.52 for Word Identification, ES=+1.03 for Word Attack, +0.63 for Passage Comprehension, and ES=+0.42 for Durrell Oral Reading, for a mean of +0.65. Analyses for children in the lowest 25% of their grade at pretest showed similar effect sizes (ES=+0.54).

A Montgomery, Alabama, study by Ross, Smith, & Bond (1994) compared two *SFA* and two matched control schools. Two cohorts (K-1 and 1-2) were followed over 2 years. On Woodcock and Durrell measures, controlling for PPVT, first graders (ES=+0.39) scored

substantially higher than controls, as did second graders ($ES=+1.15$), for a mean effect size of $+0.62$.

The first school to implement *Success for All* in Memphis was evaluated by Smith, Ross, & Casey (1994) over a four-year period. Florida Elementary, a high-poverty African American school, was compared to a matched control school among first to fourth graders. Students were pretested on the PPVT and then assessed each spring on three Woodcock scales. Students in grades 1-3 were also tested on the Durrell Oral Reading Test, and fourth graders were tested on the Gray. Effects for first graders ($n=27E, 36C$) were very positive, averaging across the four individually administered tests adjusted for pretests ($ES=+1.15, p<.01$). Second graders had an effect size of $+0.08$, third graders an effect size of $+0.56$, and fourth graders $+0.04$, for a mean of $+0.60$.

Wasik & Slavin (1993) evaluated *SFA* in a three-year study in a school in Charleston, South Carolina. Forty percent of students qualified for free lunch and 60% were African American. There were 3 cohorts, K-1, K-2, and K-3. On three Woodcock measures and the Durrell, controlling for PPVT, effect sizes were $+0.20$ for first graders, $+0.67$ for second graders, and $+0.30$ for third graders, for a mean of $+0.39$.

A two-year study by Slavin & Madden (1991) compared one *SFA* school in a small rural town in Maryland to a matched control school ($n=58E, 50C$). In second grade, there were no differences averaging across Woodcock and Durrell scales, ($ES=+0.02$) and no differences on CTBS tests ($ES=+0.02$). The study focused on reducing special education placements, and in this regard outcomes appeared positive. The year before *SFA* was introduced, 22 students in grades K-3 were referred for possible learning disabilities, and 12 were assigned to special education. In the first year of *SFA* only six children were referred and three assigned.

Wang & Ross (1999a) evaluated *Success for All* in four schools in Little Rock, Arkansas. First graders in two *SFA* schools (N=50) were matched on PPVT scores with those in two control schools (N=47) in a one-year study. Adjusting for pretests, the mean effect size on three Woodcock and one Durrell measure was +0.30.

A small evaluation in the Alhambra District near Phoenix, Arizona, compared one *SFA* and one control school (Wang & Ross, 1999b). First graders (43E, 39C) were pretested on PPVT, and were posttested on three Woodcock scales plus the Durrell Oral Reading Test. The *SFA* students scored non-significantly higher, with a mean adjusted effect size of +0.15.

A three-year experiment by Slavin & Madden (1998) compared Spanish-dominant LEP students in a Philadelphia *SFA* school to those in a matched control school (n=21E, 29C). In the third year, when LEP students had transitioned to English, third graders were tested on the English Woodcock Word Identification, Word Attack, and Passage Comprehension scales, controlling for kindergarten Spanish PPVT scores. There were substantial differences on Word Attack (ES=+0.65, $p<.001$), but no differences on Word ID (ES=+0.06) or Passage Comprehension (ES=-0.07), for a mean effect size of +0.22.

Across 23 studies involving more than 12,000 children, the weighted mean effect size for *Success for All* was +0.29. On decoding measures the overall mean was +0.33, and the mean was +0.27 for comprehension/total reading. The findings of positive effects for *Success for All* correspond with the conclusions of several previous reviews of comprehensive school reform models, such as those by Herman (1999), Borman et al. (2003), CSRQ (2006), and Social Programs that Work (2008).

Direct Instruction

Dating back to the 1960's, *Direct Instruction* (DI) is an approach to beginning reading instruction that emphasizes a step-by-step approach to phonics, decodable texts that make use of a unique initial teaching alphabet and structured, scripted manuals for teachers. The DI reading textbook, *Reading Mastery*, is published by SRA, but the full model requires much more training for teachers than the publisher provides. This training, as much as 32 person-days on site per year, is provided by certified trainers around the U.S., often under the auspices of the National Institute for Direct Instruction (NIFDI) at the University of Oregon.

The largest evaluation of *DI* was a 4-year longitudinal study carried out in the 1970's by Abt Associates as part of Follow Through Planned Variation, a federal program that provided funding to implement and evaluate various approaches to improving the education of children in grades K-3 (Kennedy, 1978; Stebbins, St. Pierre, Proper, Anderson, & Cerva, 1977). *DI* was one of nine projects evaluated, but is the only one still in use today.

The Follow Through evaluation compared schools that chose to use each of the models to others in the same district matched on demographic variables and historical achievement levels. The *DI* evaluation involved ten high-poverty sites ranging from New York City and Providence, Rhode Island to East St. Louis, Illinois and Tupelo, Mississippi. Two cohorts were studied. The total number of children in the analytic sample was 2,216 (1161E, 1055C). Most children were pretested in fall of kindergarten on a variety of measures including PPVT and WRAT. They were then posttested in spring of third grade on the MAT.

Averaging across all sites and cohorts and adjusting for pretest and demographic variables, Kennedy (1978) reported an effect size on MAT Reading Comprehension of +0.07. Most other programs had negative effects on this measure. Substantial positive effects were found on MAT-Language, but that is not relevant to the present review.

A four-year longitudinal evaluation of *DI* was done in high-poverty Baltimore schools by MacIver, Kemper, & Stringfield (2003). Six schools using *DI* were matched based on percent free lunch and historical achievement levels with six control schools. Approximately 77% of students overall qualified for free lunch at pretest, and almost all students were African-American. All children were pretested in kindergarten on the PPVT. District-administered CTBS scores were then obtained at the end of second and fourth grades. Control schools used a variety of basal textbook in grades K-1, but due to a district adoption, they used *Open Court* in grades 2-3. A total of 171 *DI* and 104 control students remained in the schools all four years.

There was a notable difference between the *DI* and control schools in retention rates. While only 1% of the *DI* students were held back over the four years, 16% of control students were retained. Including the retained children (who were in second rather than third grade at the end of the study), there were non-significant differences on CTBS Reading Comprehension ($ES=+0.13$, n.s.) and CTBS Vocabulary ($ES=.00$, n.s.), for a mean $ES=+0.07$.

Grant (1973) carried out a small matched post-hoc evaluation of *DI* in two inner-city, African American schools in Wisconsin. Children who had used *DI* in grades 1-2 in one school ($n=39$) were individually matched with those in another school ($n=39$) in the same district based on Metropolitan Reading Readiness scores given at the end of kindergarten. The control school used a Ginn 360 basal text. The *DI* students scored higher than controls on three phonics measures, the Wisconsin Tests of Reading Skill Development Long Vowels ($ES=+0.64$, $p<.001$) and Base Words and Endings ($ES=+1.33$, $p<.001$), and the Dale Johnson Word Recognition Test ($ES=+0.54$, $p<.004$). The mean effect size was $+0.84$.

Another large study of *DI* in Houston, by Carlson & Francis (2002), did not qualify for this review because it did not establish that *DI* and control groups were equivalent at pretest.

Across four evaluations of *DI*, the weighted mean effect size was +0.10. However, it is important to note that in other reviews that examined effects of *DI* in all elementary grades (not just K-1), this program has been rated as among the strongest in reading outcomes (e.g., Borman et al., 2003; CSRQ, 2006; Herman, 1999).

Average Effect Size: Combined Curricula and Instructional Approaches

Across all studies of programs that combine curriculum and instructional process approaches (n=26), the weighted mean effect size was +0.25.

Kindergarten-Only Studies

As noted earlier, studies that take place only during kindergarten can pose serious methodological challenges. Because the goals of kindergarten instruction vary a great deal from place to place, and have changed dramatically over the past 30 years, it is always possible that any experimental-control difference on an end-of-kindergarten reading measure is simply due to the fact that the control group was not being taught to read at all. Even when reading is being taught, kindergarten classes can vary greatly in their emphasis on phonics, so measures of word attack and phonological awareness can be easily inflated by programs that focus on these skills earlier than the control treatment does. Not until the end of first grade, when it is certain that control children are being seriously taught to read, can meaningful impacts of kindergarten programs be determined. Still, it is useful to know about kindergarten-only studies, as they can provide initial indications of programs worth following through to first grade and beyond.

Fourteen studies met the standards of the review but took place only during the kindergarten year. These are summarized in Table 5 and described in the following sections.

TABLE 5 HERE

Superkids

Superkids, a K-2 program published by Rowland Reading Foundation, provides teachers with extensive materials focusing on all aspects of phonics, phonemic awareness, comprehension, vocabulary, writing, and spelling, as well as training and follow-up. Two large matched studies have evaluated *Superkids* during kindergarten. One, by Borman & Dowling (2007), compared 23 experimental kindergarten classes to 20 matched control classes within the same 11 schools across the U.S. The estimated number of students was 400E, 350C. Overall, 52% of the students were minorities. Data were analyzed using HLM. On SAT-10 posttests, controlling for pretests, effect sizes were +0.25 ($p < .05$) for Sounds and Letters, +0.14 (n.s.) for Word Reading, and +0.22 ($p < .10$) for Sentence Reading, for a mean of +0.20.

A very similar study was reported by D'Agostino (2009). Within 22 schools across the U.S., 21 *Superkids* kindergarten classrooms ($n=382$) were matched with 22 ($n=368$) control classes. 47% of students qualified for free lunch and 36% were members of minority groups. Analyses used HLM. On ITBS posttests, controlling for pretests, effect sizes were +0.41 for Word Analysis, +0.23 for Reading Words, +0.24 for Reading Comprehension, and +0.02 for Vocabulary, for a mean of +0.23.

Voyager Universal Literacy System

The *Voyager Universal Literacy System* is a K-3 reading program that focuses on systematic instruction in phonics, phonemic awareness, fluency, and vocabulary (Frechtling,

Zhang, & Silverstein, 2006). It includes a progress monitoring system and provides additional instruction to struggling students, and it also incorporates some computer-assisted instruction. Three days of professional development is provided to teachers, and district coaches provide follow up assistance.

Two third-party matched studies have compared kindergarten students in *Voyager* to those using alternative approaches. A year-long evaluation of *Voyager* was carried out by Frechtling et al. (2006) in eight schools in urban districts. Four (N=202) used *Voyager* and four (N=196) used unspecified methods. The schools mostly served African American students and were fairly well matched on demographic factors and pretests. A key problem in the study, however, is that schools implementing *Voyager* spent much more time on reading, averaging 90-120 minutes per day in comparison to 60-90 minutes in the control schools. On Woodcock Word Identification (ES=+0.21, $p < .03$) and Woodcock Word Attack (ES=+1.10, $p < .001$), Voyager students scored higher than controls, adjusting for pretests, with a mean effect size of +0.67.

Hecht (2003) compared two high-poverty Orlando schools using *Voyager* (N=101) to two matched schools using *Houghton Mifflin* or *Success for All* (N=112) in a 5-month experiment. Posttest standard deviations were not presented, but the author provided raw scores and standard deviations to the What Works Clearinghouse (WWC), and these are reported here. Effect sizes adjusting for pretests were -0.10 for Woodcock Word Attack, +0.10 for Woodcock Word Analysis, and -0.07 for DIBELS Nonsense Word Fluency, for a mean of -0.02.

Instructional Technology

Waterford

Paterson et al. (2003) conducted a year-long matched evaluation of *Waterford* with 7 kindergarten and 1 first grade experimental classes and 8 kindergarten classes in a high poverty community in western New York. Students were pretested on the Brigance and post-tested on the Clay Word Recognition Test. Posttest differences adjusted for pretests showed no differences (ES=0.00).

Tracey & Young (2006) evaluated *Waterford* in a study with 265 kindergarten children (151 E, 114 C) from a high-minority northeastern community. Students in 8 experimental classrooms used the *Waterford* program for approximately 15 minutes per day. Students in 7 matched control classrooms had varying amounts of access to older hardware and software that was not systematically utilized by their teachers. Results indicated that students in the experimental classrooms performed significantly better than non-intervention students on the TERA-2 (ES=+0.47).

The Literacy Center (K)

As noted earlier, *The Literacy Center* is a LeapFrog technology program that provides 20-30 minutes daily of supplemental instruction in phonological awareness and phonics beyond core reading instruction. In a study by RMC Research Corporation (2004), six schools were randomly assigned to experimental or control groups, making this a randomized quasi-experiment. In the kindergarten component of the study (n=126E, 132C), children were pretested on four DIBELS measures and posttested on these plus DIBELS Oral Fluency and Gates-MacGinitie. Adjusting for pretests, effect sizes were +0.17 (n.s.) for Gates and +0.12 (n.s.) for DIBELS, for a mean of +0.14.

Destination Reading

Destination Reading is a supplemental integrated learning system (ILS) developed by Riverdeep. It includes lessons in phonemic awareness, phonics, vocabulary, fluency, and comprehension for children in grades K-3. Beyond exercises typical of CAI reading software, children may have stories read to them by the computer. Children may highlight individual words to hear them read, or they may read the stories independently.

In a matched study of *Destination Reading* with kindergartners, Barnett (2006) evaluated the program in a high-poverty, high-minority Florida community. 8 experimental and 7 control classes were compared on the DIBELS, Clay Word Recognition, and Dolch Word Recognition test that the district regularly administered. Controlling for pretests, the effect sizes favored the control group on the DIBELS (ES = -0.56), the Clay (ES=-0.47), and the Dolch (ES = -0.56), for a mean of -0.53.

Writing to Read

Stevenson, Cathey-Pugh, & Kosmidis (1988) evaluated *Writing to Read* in the Washington, DC Public Schools. First grade as well as kindergarten students were studied, but pretest differences among first graders were more than 50% of a standard deviation. In kindergarten, children in *Writing to Read* (n=86) were compared to those in matched control classes (n=155). Adjusting for pretests, *Writing to Read* children scored higher on MAT (ES=+0.35, $p<.05$).

A Baltimore study (Granick & Reid, 1987) compared one school using *Writing to Read* to a matched control school. Both were entirely African American schools with high free lunch participation. Children were pretested at the beginning of kindergarten on the Metropolitan

Achievement Test and then posttested on the MAT in the spring. There were no differences in gains ($ES = +0.02$, n.s.).

Instructional Process Programs

K-PALS

PALS (Peer-Assisted Learning Strategies), described earlier, is a method in which children take turns helping each other through a structured series of reading activities. The kindergarten adaptation of PALS, called K-PALS, was evaluated in a large randomized experiment by Stein, Berends, Fuchs, McMaster, Sáenz, Yen, et al. (2008). In three regions, Nashville, Minnesota, and South Texas, schools were recruited over a two-year period to participate. A total of 48 schools were recruited in Year 1 and 49 in Year 2, some of which were the same schools (71 schools participated for one or two years). A total of 224 teachers were randomly assigned to a control treatment or to one of three K-PALS variations: One-day workshop only, workshop plus two booster sessions, and workshop + booster sessions + weekly visits from a graduate assistant.

Students were pre- and posttested on a one-minute rapid letter sounds test. Adjusting for pretests, posttest effect sizes were positive for all three K-PALS variations: +0.46 for workshop-only, +0.57 for booster, and +0.50 for helper, for a mean effect size of +0.51.

Ladders to Literacy

As noted earlier, *Ladders to Literacy* is a professional development program for kindergarten teachers. The teachers participate in workshops over the course of a school year, learning activities to build phonemic awareness and phonics skills, rhyming, onset-rime blending

and segmenting, and letter sound practice. They meet with trainers every three weeks to discuss their experiences and share implementation logs.

Fuchs, Fuchs, Thompson, Otaiba, Yen, Yang, et al. (2001) evaluated *Ladders to Literacy* and a combination of *Ladders to Literacy* and *Peer-Assisted Learning Strategies* (PALS) in a randomized experiment. Students were randomly assigned within four Title I and four non-Title I schools to *Ladders + PALS*, *Ladders*, or control. A total of 33 kindergarten teachers in 8 Nashville elementary schools were randomly assigned. Sample sizes were 11 teachers and 133 children for *Ladders + PALS*, 11 and 136 for *Ladders*, and 11 and 135 for control. Approximately 38% of students were White. Twelve to 14 children were chosen for testing within each class. Experimental teachers received 1 to 1½ days of in-service training and were visited by project staff at least once a week.

Data were analyzed at the teacher level using analyses of variance. Student-level effect sizes for *Ladders*, adjusted for pretests, were +0.17 (n.s.) for Woodcock Word Attack and -0.25 for Woodcock Word Identification, for a mean of -0.04. On a follow up test in October of first grade, teacher-level differences were still non-significant, but effect sizes adjusted for pretests were +0.38 for Word Attack and +0.05 for Word Identification, for a mean of +0.21. Corresponding effect sizes for *Ladders + PALS* vs. Control were +0.36 for Word Attack and +0.25 for Word Identification at the end of Kindergarten, and +0.41 for Word Attack and +0.43 for Word Identification at first grade follow up. None of these differences were significant at the teacher level.

O'Connor (1999) evaluated *Ladders to Literacy* in 17 classes with 318 children in a large rural Midwestern district. Nine classes (N =192) in several schools were compared with eight classes (N =89) in a single kindergarten center. Children were almost all White. Adjusting for

pretests, end of kindergarten effect sizes on Woodcock Letter-Word were +0.33 ($p < .01$) for typical children and +0.68 ($p < .01$) for at-risk children, for a weighted average of +0.43.

Little Books

Little Books is an approach to early literacy in which specially written minibooks are read by teachers or parents to kindergarten children to build their language and print concepts. The books are designed to emphasize familiar themes, high-frequency content words, a close link between pictures and text, and a story with a culminating idea. A guided participation strategy is used to discuss books with children.

Phillips, Norris, Mason, and Kerr (1990) evaluated school and home use of *Little Books* among kindergarten children in rural and urban schools in Newfoundland, Canada. A total of 18 classes in 12 schools, with 309 children, were randomly assigned to four treatment groups: *Little Books* at home only, *Little Books* in school only, *Little Books* in home and school, and control. In school, *Little Books* involved a teacher introducing a book each week, following a schedule of reading to the class, reading and discussing with small groups, and then asking each child to “read” the book using the pictures and memory to reconstruct the story line. The home treatment involved an introduction to parents, suggestions for creating a positive parent-child experience, and a gradual transfer from parent reading to child reading. Use of random assignment of schools but analysis at the student level makes this a randomized quasi-experiment (RQE).

Children were pre- and posttested on the Metropolitan Reading Readiness Test (MET), which assesses auditory memory, letter recognition, language, and listening skills. All three treatment groups gained more than controls on the MET. Effect sizes adjusted for pretests were

+0.33 for the home/school version, +0.19 for school only, and +0.14 for home only. Averaging across the three variations, the mean effect size was +0.22.

Conclusion: Kindergarten-Only Studies

The kindergarten-only studies generally support the conclusions of the studies that follow children through first grade and beyond. Programs with positive effects during the kindergarten year are ones that emphasize cooperative learning, as in *K-PALS*, and ones that emphasize phonics and phonological awareness, as in *Ladders to Literacy* and *Voyager*. It is important to note that many of the programs cited in the main review, which tested children at the end of first grade, also reported very positive outcomes during kindergarten. These are also programs with a strong emphasis on phonics and/or cooperative learning, including *Success for All* (e.g., Jones et al., 1997), the phonological awareness training programs (e.g., Lundberg et al., 1988), and *Sing, Spell, Read, and Write* (Bond et al., 1995).

Overall Patterns of Outcomes

Across all categories, there were 63 qualifying studies of beginning reading programs that posttested children at the end of first grade or later. Nineteen of the studies used random assignment (8 were fully randomized and 11 were randomized quasi-experiments). The sample size-weighted mean effect size was +0.22. These studies, involving more than 22,000 children, were identified from among more than 700 studies initially reviewed, and represent those that used rigorous experimental procedures.

Overall effects were somewhat stronger for decoding measures (such as Word Attack and Letter-Word Identification) than for measures of comprehension and total reading. Across all

studies, the weighted mean effect size was +0.27 for decoding measures and +0.20 for comprehension/total reading. Comprehension measures were more likely to show positive effects in multiyear studies that followed children into second grade or beyond.

The mean effect sizes reported for programs categorized as having strong or moderate evidence of effectiveness (see below), in the range of +0.20 to +0.35, are similar to those found in previous reviews of secondary reading as well as elementary and secondary mathematics programs. Such effects are modest compared to those often reported for brief experiments or studies with measures closely aligned with treatments, but they are important in light of the fact that the means are weighted to emphasize large, realistic studies mostly using the kinds of standardized tests for which schools are held accountable. Such tests probably underestimate true impacts of experimental treatments, as they are unlikely to be sensitive to the specific content being taught. To give a sense of the importance of effect sizes of this magnitude, an effect size of +0.25 represents about half of the minority-White achievement gap in reading on the fourth grade National Assessment of Educational Progress (2007). The large, lengthy studies with standard measures that form the core of this review illustrate what could be accomplished at the policy level if schools widely adopted and effectively implemented proven programs, not what could theoretically be gained under ideal, hothouse conditions.

Summarizing Evidence of Effectiveness for Current Programs

For many audiences, it is useful to have summaries of the strength of the evidence supporting achievement effects for programs educators might select to improve student outcomes. Slavin (2008) proposed a rating system intended to balance methodological quality, weighted mean effect sizes, sample sizes, and other factors, and this system was applied by

Slavin et al. (2009 a, b), Slavin & Lake (2008), and Slavin, Lake, & Groff (2009). Using the same procedures, beginning reading programs were categorized as follows:

Strong Evidence of Effectiveness

At least two studies, one of which is a large randomized or randomized quasi-experimental study, or multiple smaller studies, with a sample size-weighted effect size of at least +0.20, and a collective sample size across all studies of 500 students or 20 classes.

Moderate Evidence of Effectiveness

At least one randomized or two matched studies of any qualifying design, with a collective sample size of 250 students or 10 classes, and a weighted mean effect size of at least +0.20.

Limited Evidence of Effectiveness: Strong Evidence of Modest Effects

Studies meet the criteria for ‘moderate evidence of effectiveness’ except that the weighted mean effect size is +0.10 to +0.19.

Limited Evidence of Effectiveness: Weak Evidence with Notable Effects

Studies have a weighted mean effect size of at least +0.20, but do not qualify for ‘moderate evidence of effectiveness’ due to insufficient numbers of studies or small sample sizes.

Insufficient Evidence of Effectiveness

Qualifying studies do not meet the criteria for ‘limited evidence of effectiveness’.

N No Qualifying Studies

Table 6 summarizes currently available programs falling into each of these categories.

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Table 6 Here

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Strong Evidence of Effectiveness

Success for All is by far the most extensively evaluated of all beginning reading programs; 23 of the 63 qualifying studies were of this program, with a combined sample size of more than 12,000 children, about equal to the samples across studies of all other programs combined. The weighted mean effect size for *SFA* was +0.29. A second program that met the criteria for “strong evidence” was *Reading Reels*, an embedded multimedia approach that supplements *Success for All*, evaluated in two randomized experiments with a weighted mean effect size of +0.20.

Like *Success for All*, *Peer Assisted Learning Strategies (PALS)* emphasizes cooperative learning, phonics, and professional development for teachers. There were five qualifying studies of PALS with a mean effect size of +0.56.

Five studies in Denmark, Norway, Germany, and the U.S. established that systematic teaching of phonological awareness to kindergartners has positive effects on reading lasting at least into second grade, with a weighted mean effect size of +0.22. At the time these studies took place, however, the control kindergartners were receiving little if any instruction in phonological awareness, and may not have been taught reading at all. As teaching of phonological awareness

has become common in kindergartens in the U.S. and other countries, it is an open question whether additional emphasis on phonological awareness would produce similar experimental-control differences today.

Moderate Evidence of Effectiveness

None of the programs fell into the “moderate” category.

Limited Evidence of Effectiveness: Strong Evidence of Modest Effects

Large randomized quasi-experiments and matched studies evaluating *Open Court Reading*, *Scholastic Phonics Readers* with *Literacy Place*, and *Direct Instruction* found effect sizes in the range of +0.10 to +0.19.

Limited Evidence of Effectiveness: Weak Evidence of Notable Effects

Single matched or small randomized experiments found effect sizes of +0.20 or more for *Classwide Peer Tutoring*, *Open Court Phonics Kits*, *Phonics-Based Reading*, *WICAT*, *Sing, Spell, Read, and Write*, *Ladders to Literacy*, *Orton-Gillingham*, *Early Reading Research*, *Reading and Integrated Literacy Strategies (RAILS)*, and *Four Blocks*.

Insufficient Evidence of Effectiveness

Studies of *Reading Street*, *Elements of Reading: Phonics*, *The Reading Machine*, *The Literacy Center*, *Waterford*, *Destination Reading*, *Plato Focus*, *Headsprout*, and *Writing to Read* reported effect sizes less than +0.10.

N No Evidence of Effectiveness

As is always true in reviews of educational programs, the largest number of programs by far have never been evaluated in experiments that meet the standards of this review.

Discussion

As in previous reviews, this synthesis found fewer large, high-quality studies of beginning reading programs than one would wish for. Although 63 studies (involving more than 22,000 students) did qualify for inclusion, there were small numbers of studies on most programs, and only 19 studies involved random assignment to conditions. Further, causal claims cannot be made with confidence in systematic reviews, which can only review the studies that exist.

Keeping these limitations in mind, there are several important patterns in the findings that are worthy of note. First, this article finds that successful programs almost always provide teachers with extensive professional development and followup focused on specific teaching methods. In particular, most of the programs with strong evidence of effectiveness have cooperative learning at their core: *Success for All*, *Peer-Assisted Learning Strategies*, *Reading Reels*, and *Classwide Peer Tutoring* all emphasize children working with other children on structured activities. These are all forms of cooperative learning in which students work in small groups to help one another master reading skills, and in which the success of the team depends on the individual learning of each team member, the elements that previous reviewers (e.g., Rohrbeck et al., 2003; Slavin, 1995, 2009; Webb & Palincsar, 1996) have identified as essential

to the effectiveness of cooperative learning. The finding of positive effects of cooperative learning programs is consistent with the findings of reviews of upper-elementary reading programs (Slavin et al., 2009a), secondary reading programs (Slavin et al., 2008) and elementary and secondary math programs (Slavin & Lake, 2008; Slavin et al., 2009b).

Second, all of the programs found to be effective or promising in qualifying experiments have a strong focus on teaching phonics and phonemic awareness. This is particularly true of *Success for All*, *PALS*, *Reading Reels*, phonological awareness training, *Open Court Phonics Kits*, *Scholastic Phonics Readers with Literacy Place*, *RAILS*, *Direct Instruction*, *Phonics-Based Reading*, and *Sing, Spell, Read, and Write*. It is important to note that studies of all of these programs found positive effects on comprehension and/or total reading measures, not just decoding measures that would appear more slanted toward phonetic approaches. However, an emphasis on phonics did not guarantee positive effects. Phonetic curricular approaches and computer-assisted instruction models, in particular, had minimal impacts on student outcomes. It clearly matters a great deal how reading is taught, and an emphasis on phonics may be necessary but it is not sufficient to ensure meaningful reading gains.

One key implication of the Gamse et al. (2008) evaluation of Reading First is that it is not enough to encourage teachers to emphasize phonics, phonemic awareness, and other elements. The Moss et al. (2008) report that analyzed differences between Reading First and similar Title I schools that did not receive Reading First funding found that Reading First teachers were in fact spending more time teaching reading, and specifically more time on phonics, phonemic awareness, fluency, vocabulary, and comprehension. The Reading First teachers were significantly more likely to use basal textbooks that were revisions of traditional basals designed primarily to increase the focus on phonics and phonemic awareness. In order of popularity in

Reading First schools, these were *Harcourt Trophies* (22.5% of RF, 15.0% of non-RF), *Open Court Reading* (15.4% vs. 9.8%), *Scott Foresman Reading* (13.0% vs. 12.2%), and Houghton Mifflin's *Nation's Choice* (10.7% vs 2.5%). Yet none of these had ever been evaluated at the beginning of Reading First, and only *Open Court Reading* has been adequately evaluated since then, in a study that found modest impacts ($ES=+0.17$; Borman et al., 2008). If adopting books with more phonics and spending a few more minutes each day on the five elements recommended by the National Reading Panel (2000) were sufficient to improve beginning reading performance, the Gamse et al. (2008) national evaluation would have found significant positive effects.

The research summarized in the present review points in a different direction. It supports the use of well-developed programs that integrate curriculum, pedagogy, and extensive professional development. Reading First began as an attempt to use scientifically-based reading research to improve daily reading instruction on a substantial scale. Yet Reading First emphasized instruction that was *based on* scientifically-based instruction, not instructional programs that had themselves been evaluated and found to be effective. The present review provides several examples of existing programs that can reliably improve beginning reading achievement, and many more such programs could be developed and evaluated. The findings suggest that scaling up programs known to be effective may be a better strategy than disseminating general principles of good practice.

The findings of this review add to a growing body of evidence to the effect that what matters for student achievement are approaches that fundamentally change what teachers and students do every day. As in earlier reviews, these strategies had outcomes that were clearly and consistently more positive than those found for textbooks, curricula, or technology alone. More

research and development of beginning reading programs is clearly needed, but this review identifies several promising approaches that could be used today to help students succeed from the beginning in this essential skill.

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Table 6
Summary of Evidence on Beginning Reading Programs*

● **Strong Evidence of Effectiveness**

Success for All (Curr + IP)

Reading Reels (IP)

Peer-Assisted Learning Strategies (PALS) (IP)

Phonological Awareness Training (IP)

● **Moderate Evidence of Effectiveness**

(None)

● **Limited Evidence of Effectiveness: Strong Evidence of Modest Effects**

Open Court Reading (Curr)

Scholastic Phonics Readers with Literacy Place (Curr)

Direct Instruction (Curr + IP)

● **Limited Evidence of Effectiveness: Weak Evidence of Notable Effects**

Classwide Peer Tutoring (IP)

Early Reading Research (IP)

Four Blocks (IP)

Ladders to Literacy (IP)

Open Court Phonics Kit (Curr)

Orton-Gillingham (IP)

Phonics-Based Reading (IT)

* Curr: Curriculum

IT: Instructional Technology

IP: Instructional Process Approach

Curr + IP: Combined curriculum and instructional process

Reading and Integrated Literacy Strategies (RAILS) (IP)

Sing, Spell, Read, and Write (IP)

WICAT (IT)

○ **Insufficient Evidence of Effectiveness**

Destination Reading (IT)

Headsprout (IT)

Plato Focus (IT)

Reading Machine (IT)

Reading Street (Curr)

The Literacy Center (IT)

Waterford (IT)

Writing to Read (IT)

N No Qualifying Studies*

100 Book Challenge

ABD's of Reading

Academy of Reading

Accelerated Literacy Learning

Accelerated Reader

AfterSchool KidzLit

Alphabetic Phonics

* Note: Programs listed here did not have qualifying studies for core beginning reading, but may have been evaluated for struggling readers. See Slavin et al., 2009.

Barton Reading & Spelling System

Be a Better Reader

Breakthrough to Literacy

Carbo Reading Styles

Caught Reading

CCC

Charlesbridge Reading Fluency

Classworks

Compass Reading

Comprehension Plus

Comprehension Upgrade

Concept-Oriented Reading Instruction (CORI)

Conceptually-Based Strategy Instruction

Consistency Management Cooperative Discipline (CMCD)

Cross-Aged Literacy Program

Digitexts

Disciplinary Literacy

Discover Intensive Phonics for Yourself

Dolch Reading Program

Early Reading Intervention (ERI)

Early Success

Earobics

EasyTech

Edmark Reading Program

Electronic Bookshelf

Elements of Reading: Comprehension

Elements of Reading: Fluency

Elements of Reading: Vocabulary

Essential Learning System

Failure Free Reading

Fast ForWord

Fast Track Reading

First Steps

Fluency First

Fluency Formula

Fluent Reader

FOCUS Reading and Language Program

Foundations and Frameworks

Fountas Pinnell Units of Study (Heineman)

Foundations

Funnix Reading Programs

Glass-Analysis method

Great Books

Great Leaps

Harcourt Collections

Harcourt Signatures

Harcourt Trophies

Houghton Mifflin Nation's Choice

Houghton Mifflin Reading

Headsprout Early Reading

Heinemann, Literacy World

Heinemann, Rigby Star

Hodder & Stoughton, Fast Forward

Hooked on Phonics®

Horizons

HOSTS

Houghton Mifflin Horizons

Houghton Mifflin Invitations to Literacy

Houghton Mifflin Legacy of Literacy

Imagine It!

IndiVisual Reading

Intensive Reading Strategies Instruction (IRSI) Model

Intensive Supplemental Reading

Invitations to Literacy

Irlen Method

Jacob's Ladder

Jolly Phonics

Jostens/Compass Learning

Kaleidoscope

Kar2ouche

Kindergarten Works

Knowledge Box

K-W-L strategy

Language Essentials for Teachers of Reading and Spelling

Language First!

Language for Thinking

LANGUAGE!

LeapTrack Assessment & Instruction System

Learning Experience Approach

Learning to Read

Learning Upgrade

Lexia

Lightspan

Like to Read

Lindamood-Bell

LiPS

LitART

Literacy by Design

Literacy Seminar

Little Books

Macmillan/McGraw-Hill Treasures

Making Connections

McGraw-Hill Reading

McGraw-Hill Spotlight on Literacy

McGraw-Hill Treasures/Triumphs

McRAT

Merit Software

My Reading Coach

Open Book Anywhere

OpenBook to Literacy

Oxford Reading Tree Stage 1 & 2 First Phonics Talking Stories

Oxford University Press Reading Tree

Pathways

Phonetics First-Focus on Sounds

Phonics and Friends

Phonics First Foundations

Phonics for Reading

Phono-Graphix

Project Read

Putting Reading First in Your Classroom

Questioning the Author

Quicktionary Reading Pen II

Read Naturally

Read Now

READ RIGHT

Read, Write & Type!

ReadAbout

Reading Apprenticeship

Reading Horizons

Reading in the Content Areas

Reading Plus

Reading Success

Reading to Learn

Reading Triumphs

Reading Upgrade

Read Well

Responsive Classroom

Rigby Reading

Rosetta Stone Literacy

Ruth Miskin Literacy

S.P.I.R.E. and Sounds Sensible

Saxon Phonics

Say Cheese! Early Years and Say Cheese Infants

Scaffolded Reading Experience

Schoolwide Enrichment Reading Model (SEM-R)

Seeing Stars

SIM-Strategic Instruction Model

Six Minute Solution

Slingerland

Smart Way Reading and Spelling

Sound Sheets

Spalding Method

Spell Read

SRA Reading

START-IN

STEPS (Sequential Teaching of Explicit Phonics and Spelling)

Strategic Literacy Initiative

Success in Reading and Writing

SuccessMaker

Sunshine

TeachFirst

Teaching Reading Essentials

Tell a Tale 2

Text Mapping Strategy

Text Talk

The Imagination Station

Thinking Works

Transactional Strategies Instruction

Tune in to Reading

Visualizing and Verbalizing

Vocabulary Improvement Program

Voices Reading

Voyager Passport

Voyager TimeWarp Plus

Voyager Universal Literacy

Wilson Reading

Wright Group Literacy

WriteToLearn

Appendix 1: Studies Not Included in the Review		
Program	Reference	Reason for not including / Problem / Comment
100 Book Challenge	Akron Public Schools. (2000). 100 Book Challenge results: Essex Elementary School. Akron, OH: Author	No control group
100 Book Challenge	Akron Public Schools. (2004). 100 Book Challenge results: Lincoln Elementary School. Akron, OH: Author	No control group
100 Book Challenge	Bristol Township School District. (2001). 100 Book Challenge results: Abraham Lincoln. Levittown, PA: Author	No control group
100 Book Challenge	Bristol Township School District. (2003). Report to parents: Abraham Lincoln Elementary School. Levittown, PA: Author	No control group
100 Book Challenge	D'Apuzzo, B. (2003). Stafford Township School District. Manahawkin, NJ.	No control group
100 Book Challenge	DuCette, J. (1999). An evaluation of the '100 Book Program.' Philadelphia, PA: Temple University.	Pretest equivalency not established
100 Book Challenge	DuCette, J. (2001). An evaluation of the 100 Book Challenge program in the schools funded by the William Penn Foundation. Philadelphia, PA: Temple University.	Pretest equivalency not established
100 Book Challenge	Harrisburg City School District (2001). 100 Book Challenge results: Woodward Elementary School. Harrisburg PA: Author.	No control group
100 Book Challenge	Offenberg, R. (2005). Effects of the 100 Books reading program on standardized test scores of urban, elementary school pupils in Philadelphia, PA. Philadelphia, PA:	Pretest equivalency not established
100 Book Challenge	Philadelphia School District (1997). 100 Book Challenge results: Two Philadelphia elementary schools. Philadelphia, PA: Author.	No control group
100 Book Challenge	Philadelphia School District (2003). Penrose Elementary. Philadelphia, PA: Author	No control group
1000 Days to Success	Kay, S.D. (2002). <i>1000 Days to Success. School reform and innovation: A case study.</i> Unpublished doctoral dissertation, Pepperdine University.	No adequate control group
Accelerated Literacy Learning	King, J. & Homan, S. (2003). Early Intervention in Literacy: An In-Class Model for Teachers. <i>Reading Research and Instruction</i> , 42(3), 32-51.	Insufficient sample
Accelerated Reader	Barsema, M., Harms, L., Pogue, C. (2002). Improving Reading Achievement through the Use of Multiple Reading Strategies. [Electronic version], Master of Arts Research Project, Saint Xavier University and SkyLight Professional Development Field-Based Program.	No control group

Accelerated Reader	Bryant, W.E. (2008). Effect of the Accelerated Reader program on academic achievement. Unpublished doctoral dissertation, Northcentral University	No adequate outcome measure
Accelerated Reader	Cuddeback, M. & Ceprano, M. (2002). The Use of Accelerated Reader with Emergent Readers. <i>Reading Improvement</i> , 39 (2), 89-96.	Duration <12 weeks
Accelerated Reader	Holmes, C.T., & Brown, C.L. (2003). A controlled evaluation of a total school improvement process, School Renaissance. Paper presented at the National Renaissance Conference, Nashville, TN.	No untreated control group
Accelerated Reader	Mathis, D. (1996). <i>The effect of the Accelerated Reader program on reading comprehension</i> . ERIC No. ED39855.	No control group.
Accelerated Reader	Ross, Steven; Nunnery, John; Goldfeder, Elizabeth. (2004) <i>A Randomized Experiment on the Effects of Accelerated Reader/Reading Renaissance in an Urban School District: Final Evaluation Report</i> . Center for Research in Educational Policy, The Memphis University.	No adequate outcome measure
Accelerated Reader	Samuels, S., Lewis, M., Wu Y., Reininger, J., & Murphy, A. (2004). Accelerated Reader vs. non-Accelerated Reader: How students using the Accelerated Reader outperformed the control condition in a tightly controlled experimental study. Minneapolis: University of Minnesota.	Outcome measure inherent to treatment
Accelerated Reader	Topping, K., & Paul, T. (1999). Computer-assisted assessment of practice at reading: A large scale survey using Accelerated Reader data. <i>Reading & Writing Quarterly</i> 15(3), 213-231.	No control group
AlphabiTunes	Cameron, I. (2002). Evaluation of the AlphabiTunes computer program for teaching beginning literacy. Victoria, BC: University of Victoria.	Pretest equivalency not established
Alpha-Time/ Bookmark/ Crossties/ Sullivan	Froniabarger, E. (1983). A comparison of the Crossties, Alpha-Time, Sullivan, and Bookmark reading readiness programs in kindergarten. Dissertation Abstracts International, 44 (8), 2349A (UMI No. 8325590).	Insufficient sample
America Reads (tutoring)	Fitzgerald, J. (2001). Can Minimally Trained College Student Volunteers Help Young At-risk Children to Read Better? <i>Reading Research Quarterly</i> , 36(1), 28-47.	No untreated control group
Apprendiendo a leer	Jimenez, Jose M. (1998) Learning to read. M.A. dissertation, California State University, Dominguez Hills, United States -- California. Retrieved October 4, 2007, from ProQuest Digital Dissertations database. (Publication No. AAT 1387527).	Insufficient sample

Audiotaped books	Dyni, L. (2006). Promoting Vocabulary Acquisition Among Grade One and Two ESL Students with Word Explanation and Repeated Reading Using Audiotaped Books. Unpublished doctoral dissertation, University of Toronto.	Duration < 12 weeks
Auditory Discrimination in Depth (ADD)	McGuinness, C., McGuinness, D., & Donohue, J. (1995). Phonological training and the alphabet principle: Evidence for reciprocal causality. <i>Reading Research Quarterly</i> , 30(4), 830-852.	Insufficient sample
Auditory Discrimination in Depth (ADD)/ Lindamood Phonemic Sequencing (LiPS)	Howard, M. (1986). Effects of pre-reading training in auditory conceptualization on subsequent reading achievement. Dissertation Abstracts International, 47 (3), 847A (UMI No. 8612677).	Pretest equivalency not established
Auditory Discrimination in Depth (ADD)/Lindamood Phonemic Sequencing (LiPS)	Lindamood-Bell Learning Processes (2003). Lindamood-Bell Learning Processes: Beginning reading submissions. (Available from the Lindamood-Bell Learning Processes 416 Higuera St., San Luis Obispo, CA, 93401)(Study: Intervention in kindergarten through 2nd grade).	Insufficient information
Auditory Discrimination in Depth (ADD)/Lindamood Phonemic Sequencing (LiPS)	Lindamood-Bell Learning Processes (2003). Lindamood-Bell Learning Processes: Beginning reading submissions. (Available from the Lindamood-Bell Learning Processes 416 Higuera St., San Luis Obispo, CA, 93401)(Study: Kindergarten through 3rd grade results from school project in Colorado).	No control group
Auditory Discrimination in Depth (ADD)/Lindamood Phonemic Sequencing (LiPS)	Lindamood-Bell Learning Processes (2004). Lindamood-Bell Learning Processes: Interventions for beginning reading evidence report-Report 1, Book I of II ((Available from the Lindamood-Bell Learning Processes 416 Higuera St., San Luis Obispo, CA, 93401)(Study: K-3 Lindamood Bell focus students 2002 summary)	Insufficient information
Auditory Discrimination in Depth (ADD)/Lindamood Phonemic Sequencing (LiPS)	Lindamood-Bell Learning Processes (2004). Lindamood-Bell Learning Processes: Interventions for beginning reading evidence report-Report 1, Book I of II ((Available from the Lindamood-Bell Learning Processes 416 Higuera St., San Luis Obispo, CA, 93401)(Study: Kindergarten students in Oregon 2001-02)	Insufficient information
Auditory Discrimination in Depth (ADD)/Lindamood Phonemic Sequencing (LiPS)	Lindamood-Bell Learning Processes (2004). Lindamood-Bell Learning Processes: Interventions for beginning reading evidence report-Report 1, Book I of II ((Available from the Lindamood-Bell Learning Processes 416 Higuera St., San Luis Obispo, CA, 93401)(Study: Pueblo, CO 2001-02 summary)	Insufficient information

Barton Reading & Spelling System (tutoring)	Research evidence of the effectiveness of the Barton Reading and Spelling system (n.d.). Retrieved from Barton Reading Web site: www.bartonreading.com/pdf/Barton%20Research.pdf .	No control group
BELL (summer success: reading - Houghton Mifflin)	Chaplin, D., & Capizzano, J. (2006, August). "Impacts of a Summer Learning Program: A Random Assignment Study of Building Educated Leaders for Life (BELL)." Washington, DC: The Urban Institute.	Duration < 12 weeks
Book Buddies	Invernizzi, M., Rosemary, C., Juel, C., & Richards, H. (1997). At-risk readers and community volunteers: A 3-year perspective. <i>Scientific Studies of Reading</i> , 1 (3), 277-300.	No untreated control group
Breakthrough to Literacy	Cohort with Breakthrough exceeds scores of other grades. W.R. McNeill Elementary School, Bowling Green City Schools, Bowling Green, Kentucky STAR Reading Assessment, Spring 2001-Spring 2002. Retrieved February 19, 2007 from http://www.breakthroughtoliteracy.com/index.html?SID&page=df_lr_studies_mcneill_1	Inadequate control group
Breakthrough to Literacy	Anderson-Abram, L.M. (2006). <i>Empirically derived reading instruction: Developing level skills with Breakthrough to Literacy's technology</i> . Unpublished doctoral dissertation, The State University of new York - Buffalo.	Pretest equivalency not established
Breakthrough to Literacy	Grimes School. (1998, January). Computer assisted reading for children at-risk. (Available from Breakthrough to Literacy, 2662 Crosspark Road, Coralville, IA 52241).	Pretest equivalence not established
Breakthrough to Literacy	Hughey, J., & Olivarez, r. (1998, January). Final report of the 1997-98 Breakthrough to Literacy computer instructional program. (Available from Breakthrough to Literacy, 2662 Crosspark Road, Coralville, IA 52241).	Pretest equivalency not established
Breakthrough to Literacy	Jones, K., & Weinhold, C. (2000, January). What effects does the incorporation of Breakthrough to Literacy into the language arts have on the early literacy development of Grove kindergartners? (Available from Breakthrough to Literacy, 2662 Crosspark Road, Coralville, IA 52241).	No control group
Breakthrough to Literacy	McGraw Hill. (2003). The new three Rs: Research, reading, and results: Breakthrough to Literacy. Ny: Author.	No control group
Breakthrough to Literacy	Williams, K.A. (2002). <i>The Impact of Breakthrough to Literacy and classroom context on the literacy performance of kindergarten students</i> . Unpublished doctoral dissertation, University of North Carolina at Charlotte.	Inadequate outcome measure

Breakthrough to Literacy	Woodward, A.W. (2005). The effects of Breakthrough to Literacy on the phonological awareness skills of students in early elementary school. Unpublished doctoral dissertation, Old Dominion University.	Inadequate outcome measure
Breakthrough to Literacy, Project Read	Bompadre, C. (2002). <i>The effectiveness of systematic reading programs on the achievement of students in grades K-2</i> . Dissertation Abstracts International, 63 (3), 890A. (UMI No. 3045848).	Pretest equivalency not established
Bridge	Biemiller, A., & Siegel, L. (1997). A longitudinal study of the effects of the Bridge reading program for children at risk for reading failure. <i>Learning Disability Quarterly</i> , 20(2), 83-92.	Pretest equivalency not established
Build a Reader	Oca, Maile Rawson (2006) Computer assisted instruction and the development of phonetic knowledge in kindergarten in the modern world. M.A. dissertation, California State University, Dominguez Hills, United States -- California. Retrieved September 28, 2007, from ProQuest Digital Dissertations database. (Publication No. AAT 1437183).	Duration < 12 weeks
CAI	Adams, M., Ingebo, G., Leiner, D., Miller, S., Mollanen, C., & Peters, L. (1983). <i>Evaluation report on computer use in the Portland Public Schools</i> . Portland, OR: Portland Public Schools.	No control group.
CAI	Boone, R. & Higgins, K. (1993). Hypermedia Basal Readers: Three Years of School-based Research. <i>Journal of Special Education Technology</i> , 12(2), 86-106.	Inadequate reading measure
CAI	Chang, L. & Osguthorpe, R. (1990). The Effects of Computerized Picture-Word Processing on Kindergartners' Language Development. <i>Journal of Research in Childhood Education</i> , 5(1), 73-84.	Duration < 12 weeks
CAI	Davidson, J. (1994). The evaluation of computer-delivered natural speech in the teaching of reading. <i>Computers & Education</i> , 22, 181-185.	Duration < 12 weeks
CAI	Davidson, J., Coles, D., Noyes, P., & Terrell, C. (1991). Using computer delivered natural speed to assist in the teaching of reading. <i>British Journal of Educational Technology</i> , 22(2), 110-118.	Duration < 12 weeks
CAI	Din, F., & Calao, J. (2001). The effects of playing educational video games on kindergarten achievement. <i>Child Study Journal</i> , 31, 95-103.	Duration < 12 weeks
CAI	Fletcher, J.D., & Atkinson, R.C. (1972). Evaluation of the Stanford CAI Program, in initial reading. <i>Journal of Educational Psychology</i> , 63(6), 597-602.	Insufficient information

CAI	Hardman, R. (1994). The effect of CAI on reading achievement. ERIC No. ED373311	Pretest equivalency not established
CAI	Hess, R. & McGarvey, L. (1987). School-Relevant Effects of Educational Uses of Microcomputers in Kindergarten Classrooms and Homes. <i>Journal of Educational Computing Research</i> , 3(3), 269-287.	Insufficient information
CAI	Korat, O., & Shamir, A. (2008). The Educational Electronic Book as a Tool for Supporting Children's Emergent Literacy in Low versus Middle SES Groups. <i>Computers & Education</i> , 50 (1), 110-124.	Duration < 12 weeks
CAI	Labbo, D. (1996). A semiotic analysis of young children's symbol making in a classroom computer center. <i>Reading Research Quarterly</i> , 31, 356-385.	No control group
CAI	Legaspi, Michelle Bella (2007) The effects of educational software on emergent readers: A TBE fieldtest. M.A. dissertation, California State University, Dominguez Hills,	No control group
CAI	Lewin, C. (2000). Exploring the effects of talking book software in UK primary classrooms. <i>Journal of Research in Reading</i> , 23, 149-157.	Duration < 12 weeks
CAI	Lewin, C. (1997). "Test Driving" CARS: Addressing the issues in the evaluation of computer-assisted reading software. <i>Journal of Computing in Childhood Education</i> , 8 (2/3), 111-132.	No control group
CAI	Reitsma, P., & Wesseling, R. (1998). Effects of computer-assisted training of blending skills in kindergartners. <i>Scientific Studies of Reading</i> , 2 (4), 301-320.	No adequate control group
CAI	Segers, E. & Verhoeven, L. (2005). Long-term Effects of Computer Training of Phonological Awareness in Kindergarten. <i>Journal of Computer Assisted Learning</i> , 21, 17-27.	Pretest equivalency not established; inadequate outcome measure
CAI	Segers, E., Takke, L., & Verhoeven, L. (2004). Teacher-Mediated Versus Computer-Mediated Storybook Reading to Children in Native and Multicultural Kindergarten Classrooms. <i>School Effectiveness and School Improvement</i> , 15(2), 215-226.	Duration < 12 wks
CAI	Wild, M. (1997). Using CD Rom storybooks to encourage reading development. <i>Set Special 1997: Language and Literacy</i> , 6, 1-4.	No control group
CAI	Williams, G. (1993). <i>Efficacy of computer assisted instruction in the areas of math application and reading comprehension</i> . Meridian, MS: Mississippi State University.	No control group.
CAI	Williams, H., & Williams, P. (2000). Integrating reading and computers: an approach to improve ESL students' reading skills. <i>Reading Improvement</i> , 37, 98-100.	No control group

DECTalk	Wise (1992). Whole words and decoding for short-term learning: Comparisons on a "talking computer" system. <i>Journal of Experimental Child Psychology</i> , 54 (2), 121-249.	Duration < 12 weeks
California Early Literacy Learning (CELL)	Swartz, S. (2003). California Early Literacy Learning (CELL): Research report 1994-2003. (Available from the Foundation for California Early Literacy Learning, 104 East State Street, Suite M., Redlands, CA 92373).	No control group
California Early Literacy Learning (CELL)	Swartz, S., Shook, R., & Klein, A. (2003). Foundation for California Early Literacy Learning. (Available from the Foundation for California Early Literacy Learning, 104 East State Street, Suite M., Redlands, CA 92373).	No control group
California Early Literacy Learning (CELL) / Reading Recovery	Swartz, S. (1999, December). California Early Literacy Learning and Reading Recovery: Two innovative programs for teaching children to read and write. Paper presented at the Claremont Reading Conference, CA.	No control group
Canine Assisted Reading Education (C.A.R.E.)	Paradise, J.L. (2007). <i>An analysis of improving student performance through the use of registered therapy dogs serving as motivators for reluctant readers</i> . Unpublished doctoral dissertation, University of Central Florida	Tests not standardized; no evidence of initial equality
Carbo Reading Styles Program	Langford, D. (2000). Two-year results of the Carbo Reading Styles Program: Patterson Elementary School, Montgomery, AL.	No control group
Carbo Reading Styles Program	Skipper, B. (1997). Reading with style. <i>American School Board Journal</i> , 184(2), 36-37.	No control group
CCC/ Successmaker	Brush, T. A. (1998). An evaluation of the effectiveness of the Computer Curriculum Corporation's (CCC) foundations and exploreware software on students in grades one through five. Unpublished manuscript.	Duration < 12 weeks, no untreated control group
CIERA School Change Project	Taylor, B.M., Pearson, D., Peterson, D. & Rodriguez, M. (2002). The CIERA School Change Project: Supporting Schools as They Implement Home-Grown Reading Reform. CIERA Report. University of Michigan.	No control group
Classwide Peer Tutoring	Bradley, D., Bjorlykke, L., Mann, E., Homon, C., & Lindsay, J. (1993, October). <i>Empowerment of the general educator through effective teaching strategies</i> . Paper presented at the meeting of the International Conference on Learning Disabilities, Baltimore, MD.	No adequate control group - no untreated group
Classwide Peer Tutoring	Fuchs and Mathes 1993 (in pals)	Duration < 12 weeks
Classwide Peer Tutoring	Weidinger, D. (2005). <i>The effects of Classwide Peer Tutoring on the acquisition of Kindergarten reading and math skills</i> . Unpublished doctoral dissertation, University of Kansas.	No adequate control group.

CLEAR	Chamberlain, E., Beck, D., & Johnson, J. (1983). Final evaluation report: Language development component Compensatory Language Experiences and Reading program. Columbus, OH: Ohio Public Schools Department of Evaluation Services.	No control group.
CLIP	Alegria-Romero, M.L. (2006). Development and assessment of an early literacy intervention program in an elementary school. Unpublished doctoral dissertation, Northern Arizona University	Pretest differences > 1/2 std dev
CMCD	Freiberg, H.J., Prokosch, N., Tresister, E.S., & Stein, T. (1990). Turning around five at-risk elementary schools. <i>Journal of School Effectiveness and School Improvement</i> , 1(1), 5-25.	Pretest differences > 1/2 std dev
Coalition of Essential Schools (looked at for SFA)	Stringfield, S., Millsap, M. A., Herman, R., Yoder, N., Brigham, N., Nesselrodt, P., et al. (1997). <i>Urban and suburban/rural special strategies for educating disadvantaged children: Final report</i> . Washington, DC: U.S. Department of Education.	No control group
Collaborative Reasoning	Reznitskaya, A., Anderson, R. C., McNurlen, B., Nguyen-Jahiel, K., Archodidou, A., & Kim, S. (2001). Influence of oral discussion on written argument. <i>Discourse Processes</i> , 32, 155–175.	Duration < 12 weeks
Collections	Educational Research Institute of America (ERIA). Fall 1999 Study of the instructional effectiveness of Harcourt's Reading/Language Arts program: COLLECTIONS c2000	No adequate control group
Collections	Educational Research Institute of America (ERIA). Longitudinal one-year study of the instructional effectiveness of Harcourt's Reading/Language Arts program: Collections	No adequate control group
Collections	Educational Research Institute of America (ERIA). Longitudinal two-year study of the instructional effectiveness of Harcourt's Reading/Language Arts program: Collections c2000	No adequate control group
Collections	Educational Research Institute of America (ERIA). School year 1999-2000 study of the instructional effectiveness of Harcourt's Reading/Language Arts program: COLLECTIONS c2000 Kindergarten	No adequate control group
Collections	Educational Research Institute of America (ERIA). Spring 2000 study of the instructional effectiveness of Harcourt's Reading/Language Arts program: COLLECTIONS c2001	No adequate control group

Collections	Conner, J., Green, B., & Lloyd, P. (2000). A summary report of the instructional effectiveness of "Collections: A Harcourt reading/language arts program." Bloomington, IN: Educational Research Institute of America.	No control group
Collections/ Intervention Readers	Educational Research Institute of America (ERIA). Winter/Spring 2001 study of the instructional effectiveness of the intervention readers in Harcourt's Reading/Language Arts program: COLLECTIONS c2001	No adequate control group
Companion Reader (same-age tutoring)	Arblaster, G.R., Butler, C., Taylor, A.L., Arnold, C., & Pitchford, M. (1991). Same-age tutoring, mastery learning and mixed ability teaching of reading. <i>School Psychology International</i> , 12, 111-118.	Inadequate sample
Compensatory Language Experiences and Reading Program (CLEAR)	Chamberlain, E., Beck, D., & Johnson, J. (1983). Language development component, compensatory language experiences and reading program. Columbus, OH: Columbus Public Schools, Department of Evaluation Services.	No control group
Comprehension Instruction Strategy	Morris, J.B. (1986). <i>The effect of training teachers in a schema-based comprehension instruction strategy on teachers' classroom behavior and students' reading achievement</i> . Unpublished doctoral dissertation, University of Oregon.	Duration < 12 weeks
Computer Feedback	Spaai et al (1991) Effects of segmented and whole word sound feedback on learnin gto read single words	No control group
Concept Phonics	Fitzgerald, J. & Ramsbotham, A. (2004). First graders' cognitive and strategic development in Reading Recovery reading and writing. <i>Reading Research and Instruction</i> (44)1, 1-31.	Duration <12 weeks
Cooperative Integrated Reading and Composition (CIRC)	Jenkins, J., Jewell, M., Leicester, N., O'Connor, R., Jenkins, L. & Troutner, N. (1994). Accommodations for Individual Differences Without Classroom Groups: An Experiment in School Restructuring. <i>Exceptional Children</i> , 60(4), 344-358.	No adequate control group
Cooperative Learning	Talmage, H., Pascarella, E. T., & Ford, S. (1984). The influence of cooperation learning strategies on teacher practices, student perceptions of the learning environment, and academic achievement. <i>American Educational Research Journal</i> , 21(1), 163-179.	No control group
Cooperative Learning, Cross-Age Tutoring	Hubbard, T., & Newell, M. (1999). Improving Academic Achievement in Reading and Writing in Primary Grades. Unpublished master's thesis, Saint Xavier University	No control group

Core Knowledge	Mac Iver, M., Stringfield, S., & McHugh, B. (2000). Core Knowledge Curriculum: Five year analysis of implementation and effects in five Maryland schools. Baltimore, MD: Johns Hopkins University, Center for Social Organization of Schools.	Pretest equivalency not established
Core Knowledge	Taylor, B., Pearson, P., Clark, K., & Walpole, S. (1999). Beating the odds in teaching all children to read (Report No. 2-006). Ann Arbor: University of Michigan, Center for the Improvement of Early Reading Achievement.	No control group
Cornerstone Literacy Initiative	Lockwood, D., Donis-Keller, C., Hanlon, E., Saunders, T., Wang, L., Weinstein, M. et al. (2004). Second year evaluation report: Cornerstone Literacy Initiative. New York: Institute for Education and Social Policy. (Study: Bridgeport). Retrieved from http://steinhardt.nyu.edu/iesp/publications/pubs/cornerstone/ENTIRE%20REPORT.PDF	No adequate control group, Pretest equivalency not established
Cornerstone Literacy Initiative	Lockwood, D., Donis-Keller, C., Hanlon, E., Saunders, T., Wang, L., Weinstein, M. et al. (2004). Second year evaluation report: Cornerstone Literacy Initiative. New York: Institute for Education and Social Policy. (Study: Cleveland). Retrieved from http://steinhardt.nyu.edu/iesp/publications/pubs/cornerstone/ENTIRE%20REPORT.PDF	No adequate control group. Pretest equivalency not established
Cornerstone Literacy Initiative	Lockwood, D., Donis-Keller, C., Hanlon, E., Saunders, T., Wang, L., Weinstein, M. et al. (2004). Second year evaluation report: Cornerstone Literacy Initiative. New York: Institute for Education and Social Policy. (Study: Dalton). Retrieved from http://steinhardt.nyu.edu/iesp/publications/pubs/cornerstone/ENTIRE%20REPORT.PDF	No adequate control group
Cornerstone Literacy Initiative	Lockwood, D., Donis-Keller, C., Hanlon, E., Saunders, T., Wang, L., Weinstein, M. et al. (2004). Second year evaluation report: Cornerstone Literacy Initiative. New York: Institute for Education and Social Policy. (Study: New Haven). Retrieved from http://steinhardt.nyu.edu/iesp/publications/pubs/cornerstone/ENTIRE%20REPORT.PDF	Pretest equivalency not established
Cornerstone Literacy Initiative	Lockwood, D., Donis-Keller, C., Hanlon, E., Saunders, T., Wang, L., Weinstein, M. et al. (2004). Second year evaluation report: Cornerstone Literacy Initiative. New York: Institute for Education and Social Policy. (Study: Trenton). Retrieved from http://steinhardt.nyu.edu/iesp/publications/pubs/cornerstone/ENTIRE%20REPORT.PDF	Pretest equivalency not established

Cross-Age Tutoring, Reading Recovery	Stephens, H.L. (2002). Cross-age tutoring program coordinated with classroom instruction: Effects on elementary students' reading and writing achievement. Unpublished doctoral dissertation, Texas A&M University - Commerce.	Insufficient sample
Daisy Quest	Travis, P.C. (1997). <i>Effects of computer-assisted and teacher-led phonological awareness instruction for first-grade students at risk for reading failure</i> . Unpublished doctoral dissertation, University of Florida.	Duration < 12 weeks
DaisyQuest	Barker, T., & Torgesen, J. K. (1995). An evaluation of computer-assisted instruction in phonological awareness with below average readers. <i>Journal of Educational Computing Research</i> , 13(1), 89–103.	Duration < 12 weeks
DaisyQuest	Foster, K. C., Erickson, G. C., Foster, D. F., Brinkman, D., & Torgesen, J. K. (1994). Computer administered instruction in phonological awareness: Evaluation of the <i>DaisyQuest</i> program. <i>Journal of Research and Development in Education</i> , 27(2), 126–137.	Duration < 12 weeks
DaisyQuest	Mitchell, M. J., & Fox, B. J. (2001). The effects of computer software for developing phonological awareness in low-progress readers. <i>Reading Research and Instruction</i> , 40(4), 315–332.	Duration < 12 weeks
Davis Learning Strategies	Pfeiffer, S., Davis, R., Kellogg, E., Hern, C., McLaughlin, T., & Curry, G. The effect of the Davis Learning Strategies on first grade word recognition and subsequent special education referrals. <i>Reading Improvement</i> , 38 (2), 74-84	Tests not standardized
Decision Rules and Procedures	Compton, D.L., Douglas Fuchs, Lynn S. Fuchs, Joan D. Bryant. (2006) Selecting At-Risk Readers in First Grade for Early Intervention: A Two-Year Longitudinal Study of Decision Rules and Procedures. <i>Journal of Educational Psychology</i> 98:2, 394	No control group
Intensive Decoding	Bottomley, D., & Osborn, J. (1993). The Effectiveness of an Intensive Decoding and Comprehension Instructional Reading Program with First Grade Students Who Are At-Risk for Learning To Read. Technical Report No. 587. Washington, DC: OERI.	Insufficient sample
DECTalk	Barron, R., Golden, J., Seldon, M., Tait, C., Marmurek, H., & Haines, L. (1992). Teaching prereading skills with a talking computer: letter-sound knowledge and print feedback facilitate nonreaders' phonological awareness training. <i>Reading and Writing: An Interdisciplinary Journal</i> , 4, 179-204.	No untreated control group

Destination Reading	De Long-Cotty, B., & Levenson, T. (2004). The impact of Destination Reading on kindergarten and first grade reading skills. San Francisco, CA: Riverdeep Limited.	Pretest equivalency not established
Development	<i>Morris, D., Bloodgood, J.W., Lomax, R.G., & Perney, J. (2003). Developmental steps in learning to read: A longitudinal study in kindergarten and first grade. Reading Research Quarterly, 38, 302-328.</i>	No control group
Direct Instruction	Meyer, L., Gersten, R., & Guskin, J. Direct Instruction: A Project Follow Through success story. Technical report no.302. Cambridge, MA: Illinois University.	Pretest equivalency discussed but not documented; inadequate control group
Direct Instruction	phonemic awareness skills in primary school children. <i>Reading, 31, 37-40.</i>	Insufficient sample
Direct Instruction	Becker, W.C., & Carnine, D.W. (1980). Direct instruction: An effective approach to educational intervention with the disadvantaged and low performers. <i>Advances in clinical child psychology, 3, 429-473.</i>	Summarizing PFT
Direct Instruction	Brent, G., & DiOilda, N. (1993). Effects of curriculum alignment versus direct instruction on urban children. <i>Journal of Educational Research, 86, 333-338.</i>	Pretest equivalency not established
Direct Instruction	Buschemeyer, S. (2005). A study of the impact of Direct Instruction on the Jefferson County Public School's reading curriculum. Unpublished doctoral dissertation, Louisville, KY: Spalding University	Insufficient information
Direct Instruction	Darch, C., Gersten, R., & Taylor, R. (1987). Evaluation of Williamsburg County Direct Instruction program: Factors leading to success in early elementary programs. <i>Research in Rural Education, 4.</i>	Subsumed in later report
Direct Instruction	Engelmann, S. (1970). The effectiveness of direct instruction on IQ performance and achievement in reading and arithmetic. In J. Hellmuth (Ed.) <i>Disadvantaged child</i> (Vol. 3) (pp. 339-361). New York: Brunner/Mazel.	Insufficient sample+C263
Direct Instruction	Gersten, R., Becker, W., Heiry, T., & White, W. (1984). Entry IQ and yearly academic growth of children in Direct Instruction programs: A longitudinal study of low SES children. <i>Educational Evaluation and Policy Analysis, 6, 109-121.</i>	No control group
Direct Instruction	Gersten, R., Darch, C., & Gleason, M. (1988). Effectiveness of a Direct Instruction academic kindergarten for low-income students. <i>The Elementary School Journal, 89(2), 227-240.</i>	Pretest equivalency not established
Direct Instruction	Kaufman, M. (1973). <i>The Effect of the DISTAR Instructional System: An evaluation of the 1972-1973 Title I Program of Winthrop, Massachusetts.</i> (ERIC No. ED 110171)	Ill-defined treatment

Direct Instruction	Kaufman, M. (1974). <i>The Effect of the DISTAR Instructional System: An evaluation of the 1973-1974 Title I Program of Winthrop, Massachusetts</i> . (ERIC No. ED 110170)	E and C groups not well matched: SD >.50
DI/ PALS	Keaton, J.M., Palmer, B.C. Nicholas, K.R. Lake. V.E. (2007). Direct Instruction with Playful Skill Extensions: Action Research in Emergent Literacy Development. <i>Reading Horizons</i> , 47(3), 229-250.	No control group
Direct Instruction	McCabe, T.A. (1974). <i>The DISTAR Reading and Language Program: Study of its effectiveness as a method for the initial teaching of reading</i> . Doctoral Dissertation, University of Massachusetts. (ERIC No. ED 102498)	Inadequate outcome measure
Direct Instruction	McCollum-Rogers, S. (2004). Comparing Direct Instruction and Success for All with a basal reading program in relation to student achievement. Dissertation Abstracts International, 65 (10), 3642A. (UMI No. 3149920).	Pretest equivalency not established
Direct Instruction	Ogletree, E. J. (1976). <i>A comparative study of the effectiveness of DISTAR and eclectic reading methods for inner-city children</i> . (ERIC No. ED 146544)	Pretest equivalency not established
Direct Instruction	Silbert, J., Carnine, D., & Alvarez, R. (1994). Beginning reading for bilingual students. <i>Educational Leadership</i> , 51(5), 90-92.	No control group
Direct Instruction, Corrective Reading	Gunn, B., Smolkowski, K., Biglan, A., & Black, C. (2002). Supplemental instruction in decoding skills for Hispanic and Non-Hispanic students in early elementary school: A follow up. <i>Journal of Special Education</i> , 36 (2), 69-79.	Subsumed in later report
Direct Instruction / DISTAR	Bowers, W. M. (1972). <i>An Evaluation of a pilot program in reading for culturally disadvantaged first grade students</i> . Unpublished doctoral dissertation, University of Tulsa.	Pretest differences > 1/2 std dev
Direct Instruction Reading Program (formerly DISTAR)	Goldman, B.E. (2000). <i>A study of the implementation of a direct instruction reading program and its effects on the reading achievement of low-socioeconomic students in an urban public school</i> . Unpublished doctoral dissertation, Loyola University of Chicago.	Pretest equivalency not established
Direct Instruction/ Corrective Reading	Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. <i>Journal of Educational Psychology</i> , 80 (4), 437-447.	No control group
Direct Instruction/ DISTAR	Carnine, L., Carnine, D., & Gersten, R. (1984). Analysis of oral reading errors made by economically disadvantaged students taught with a synthetic-phonics approach. <i>Reading Research Quarterly</i> , 19(3), 343-356.	No adequate control group

Direct Instruction/ DISTAR	Sexton, C.W. (1989). Effectiveness of the DISTAR Reading I Program in developing first graders' language skills. <i>Journal of Educational Research</i> , 82(5), 289-293.	Inadequate outcome measure
Direct Instruction/ Horizons	Tobin, K. (2003). The effects of the Horizons Reading Program and prior phonological awareness training on the reading skills of first graders. <i>Journal of Direct Instruction</i> , 3(1), 1-16.	Pretest equivalency not established
Direct Instruction/ Reading Mastery	League, M. (2001). The effects of the intensity of phonological awareness instruction on the acquisition of literacy skills. Dissertation Abstracts International, 62 (10), 3299A. (UMI No. 30275-42).	Pretest equivalency not established
Direct Instruction/ Reading Mastery	Ryder, R., Sekulski, J., & Silberg, A. (2003). Results of Direct Instruction reading program evaluation longitudinal results: First through third grade 2000-2003. Retrieved from University of Wisconsin-Milwaukee Web site: http://www.uwm.edu/News/PR/04.01/DI_Final_Report_2003.pdf .	Pretest equivalency not established
Direct Instruction/ Reading Mastery	Thomson, B. (1991). Pilot study of the effectiveness of a direct instruction model (Reading Mastery Fast Cycle) as a supplement to a literature based delivery model (Houghton-Mifflin Integrated Reading Program) in two regular first grade classrooms. <i>Florida Educational Research Council Research Bulletin</i> , 23(2), 3-23.	Pretest equivalency not established
Direct Instruction/ Reading Mastery	Umbach, B.T., Darch, C.B., & Halpin, G. (1987). <i>Teaching reading to low performing first graders: A comparison of two instructional approaches</i> . Paper presented at the annual meeting of the Mid-South Educational Research Association, Mobile, AL.	Insufficient sample
Direct Instruction/ Reading Mastery (RITE)	Carlson, C. D., & Francis, D. J. (2002). Increasing the reading achievement of at-risk children through Direct Instruction: Evaluation of the Rodeo Institute for Teacher Excellence (RITE). <i>Journal of Education for Students Placed at Risk</i> , 7, 141-166.	pretest equivalence not established
Direct Instruction/ Reading Mastery, Language for Learning, and Corrective Reading	Joseph, B. (2000). Teacher expectations of low-SES preschool and elementary children: Implications of a research-validated instructional intervention for curriculum policy and school reform. Dissertation Abstracts International, 65 (1), 35A. (UMI No. 3120273).	No control group
Direct Instruction/DISTAR	DeVries, R., Reese-Learned, H., & Morgan, P. (1991). Sociomoral development in Direct Instruction, eclectic, and constructivist kindergartens: A study of children's emotional interpersonal understanding. <i>Early Childhood Research Quarterly</i> , 6, 473-517.	Pretest equivalency not established

DISTAR	Rawl, R.K., & O'Tuel, F.S. (1982). A comparison of three prereading approaches for kindergarten students. <i>Reading Improvement</i> , 19, 205-211.	Pretest differences > 1/2 SD at baseline
DISTAR	Williamson, F. (1970). <i>DISTAR reading—Research and experiment</i> . Illinois University, Urbana, 1970. (ERIC No. ED 045318).	Insufficient sample
Dr. Cupp Readers vs Phonics K(Saxon-supp)/Harcourt's Trophies	Wicker, K. (2007). The effect of two reading programs on kindergarten student's reading readiness. Unpublished doctoral dissertation, Walden University.	Insufficient sample
Early Intervention in Reading (EIR)	Taylor, B.M., Critchley, C., Paulsen, K., MacDonald, K. & Miron, H. (2002). <i>Learning to Teach an Early Reading Intervention Program Through Internet-Supported Professional Development</i> . Edina, Minn.: Web Education Company, 2002.	Inadequate outcome measure
Early Intervention in Reading (EIR)	Wing, M.A. (1994). The Effects of a Supplemental Literacy Program on Students in a Developmental First-Grade Classroom Using Cross-age Tutors. Dissertation Abstracts International, 50 (1), 151A (UMI No.9514687).	Insufficient sample
Early Language Connections	Dickinson, J.F. (1997). Influence of the Early Language Connections program on primary student achievement in Fort Smith, Arkansas public schools. Unpublished doctoral dissertation, University of Arkansas.	Pretest equivalency not established
Earobics	Cognitive Concepts Inc (2003)	No adequate reading measure outcomes
Earobics	Cognitive Concepts, Inc. (2000). Earobics Early Literacy Instruction: Chicago Public Schools pilot research report. Retrieved from http://www.cgcon.com/research.proven/cpsoutcomes.pdf .	No control group
Earobics	Cognitive Concepts, Inc. (2001). Outcomes report: Daviess County Public Schools, KY. Retrieved from http://www.cogcon.com/research/proven/DaviesCounty.pdf	No control group
Earobics	Cognitive Concepts, Inc. (2001). Outcomes report: Newport News Public Schools, Virginia. Retrieved from http://www.cogcon.com/research/proven/newportoutcomes.pdf	Not a study of reading comprehension
Earobics	Cognitive Concepts, Inc. (2001). Outcomes report: Spring Branch Independent School District, Texas. Retrieved from http://www.cogcon.com/research/proven/ShadowOutcomes.pdf	No control group
Earobics	Cognitive Concepts, Inc. (2002). Outcomes report: Anne Arundel County Public Schools, Maryland. Retrieved from http://www.cogcon.com/research/proven/Aa-OC.pdf	No control group

Earobics	Cognitive Concepts, Inc. (2002). Outcomes report: Brevard County Public Schools, Florida. Retrieved from http://www.cogcon.com/research/proven/Brevard.pdf	No control group
Earobics	Cognitive Concepts, Inc. (2002). Outcomes report: Cincinnati Children's Hospital Medical Center, Ohio. Retrieved from http://www.cogcon.com/research/proven/CCH-OC.pdf	No control group
Earobics	Cognitive Concepts, Inc. (2002). Outcomes report: Culver City Unified School District, CA. Retrieved from http://www.cogcon.com/research/proven/culveroutcomes.pdf	No control group
Earobics	Cognitive Concepts, Inc. (2002). Outcomes report: District of Columbia Public Schools, Washington, DC. Retrieved from http://www.cogcon.com/research/proven/DCPS-OC.pdf	No control group
Earobics	Cognitive Concepts, Inc. (2002). Outcomes report: Polk County School District, Florida. Retrieved from http://www.cogcon.com/research/proven/polkoutcomes.pdf	No control group
Earobics	Pobanz, M. (2000, January). The effectiveness of an early literacy/auditory processing training program, called Earobics, with young children achieving poorly in reading. Paper presented at the meeting of the California Association of Social Psychologists, Los Angeles, CA.	No control group
Earobics	Rehmann, R. (2005). The effect of Earobics(TM) Step 1, software on student acquisition of phonological awareness skills. Unpublished doctoral dissertation, University of Oregon.	Duration < 12 weeks
Earobics	Valliath, S. (2002). An Evaluation of a Computer-Based Phonological Awareness Training Program: Effects on Phonological Awareness, Reading and Spelling. Unpublished doctoral dissertation, Northwestern University.	Duration < 12 weeks
Educational video games	Rosas, R. et al. (2003). Beyond Nintendo: Design and Assessment of Educational Video Games for First and Second Grade Students. <i>Computers & Education</i> , 40(1), 71-94.	Pretest equivalency not established
EIR	Lennon, J & Slesinski, C. (1999). Early Intervention in Reading: Results of a Screening and Intervention Program for Kindergarten Students. <i>School Psychology Review</i> , 28(3), 353-364.	No adequate control group

ERI	Yurick, A. (2006). <i>The Effectiveness of an Instructional Assistant Led Supplemental Early Reading Intervention with Urban Kindergarten Students</i> . Unpublished doctoral dissertation, Ohio State University.	No adequate control group - > 1/2 SD apart at baseline
Exemplary Center for Reading Instruction (ECRI)	Reid, E. (1996). Exemplary Center for Reading Instruction (ECRI) validation study. Salt Lake City, UT: Exemplary Center for Reading. (ERIC No. ED 414560).	No control group
Failure Free Reading	Bergquist, C., Richardson, G., Bigbie, C., Castine, W., Hancock, W., Largent, W. et al. (2001). Final report of the Failure Free Reading Bridges programs funded under Florida's 2000 Specific Appropriation 5A: Executive summary. Tallahassee, FL: Evaluation Systems Design, Inc.	No adequate control group
Failure Free Reading	Blount, L. (2003). Clay County School District comprehensive school reform grant project summary and evaluation report July 1, 1998-June 30, 2001. Green Cove Springs, FL: Clay County School District.	No adequate control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Chester Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Fullerton Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Lincoln Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Lowest literacy students during OhioReads).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Lyme Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: North Elementary, Urbana City Schools).	No control group

Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Perry Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: SC Dennis Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Williamson Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. Retrieved August 26, 2006 from http://www.failurefree.com/downloads/FFR_OH_Reads_Set_1.pdf . (Study: Midway Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free reading research findings: OhioReads 2000-01 school year results. Retrieved August 26, 2006 from http://www.failurefree.com/downloads/FFR_OH_Reads_Set_1.pdf . (Study: Mount Washington Elementary).	No control group
Failure Free Reading	Failure Free Reading (2003). Failure Free Reading's continuum of effectiveness: Research summary (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025)(Study: Greensboro Elementary, Gadsden County, FL).	No adequate control group
Failure Free Reading	Failure Free Reading (2003). OhioReads research evaluation (2000-2001 School Year) impact on lowest literacy students. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Lowest literacy students during OhioReads).	No control group
Failure Free Reading	Failure Free Reading (2004). Anne Arundel County, MD. Retrieved from http://www.failurefree.com/downloads/Anne_Arundel_Summary.pdf .	No control group
Failure Free Reading	Failure Free Reading (n.d.). Chicago Public Schools SES tutoring evaluation. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025).	No control group
Failure Free Reading	Failure Free Reading (n.d.). Independent research study Failure Free Reading research case study. (Available from Failure Free Reading, 140 Cabarrus Ave., W. Concord, NC 28025).	No control group

Failure Free Reading	Failure Free Reading. (1999). Failure Free Reading's Impact on North Carolina's end of grade assessment. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025) (Study: Cabarrus County-Coltrane-Webb Elementary, NC).	No control group
Failure Free Reading	Failure Free Reading. (1999). Failure Free Reading's Impact on North Carolina's end of grade assessment. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025) (Study: Catawba County).	No control group
Failure Free Reading	Failure Free Reading. (1999). Failure Free Reading's Impact on North Carolina's end of grade assessment. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025) (Study: Johnson County-Benson Elementary, NC).	No control group
Failure Free Reading	Failure Free Reading. (1999). Failure Free Reading's Impact on North Carolina's end of grade assessment. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025) (Study: Lincoln County).	No control group
Failure Free Reading	Failure Free Reading. (1999). Failure Free Reading's Impact on North Carolina's end of grade assessment. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025) (Study: Rutherford County-Futherfordton Elementary, NC).	No control group
Failure Free Reading	Failure Free Reading. (2003). Case study: Washington, DC summer reading blitz for special education. Concord, NC: Author. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025).	No control group
Failure Free Reading	Failure Free Reading. (2003). Coronado High School Students, El Paso, TX: Stanford Achievement Test growth results. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025).	No control group
Failure Free Reading	Failure free Reading. (2003). Failure Free Reading research findings: Intervention for beginning reading. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Greenwood, MS: Longitudinal study of at-risk first graders).	No control group
Failure Free Reading	Failure free Reading. (2003). Failure Free Reading research findings: Intervention for beginning reading. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Rowan County, NC: Reading readiness study of at-risk first graders).	No control group

Failure Free Reading	Failure free Reading. (2003). Failure Free Reading's continuum of effectiveness: Research summary. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Dickerson Elementary).	No control group
Failure Free Reading	Failure free Reading. (2003). Failure Free Reading's continuum of effectiveness: Research summary. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: West Clay Elementary, Clay County, MS).	No control group
Failure Free Reading	Failure Free Reading. (2003). Washington, DC--Reed Elementary 2002/03 results. Retrieved from http://www.failurefree.com/downloads/FFR_Reed_Elem_2003.pdf .	No control group
Failure Free Reading	Failure Free Reading. (2004). Supplemental educational service provider (SSP): Bacon School, Millville, NJ. Retrieved from http://www.failurefree.com/downloads/Bacon_Results_Summary.pdf	No control group
Failure Free Reading	Failure Free Reading. (n.d.). Dramatic intensive intervention results in Chicago. Retrieved from: http://failurefree.com/downloads/Dulles_Elem_Chicago.pdf	No control group
Failure Free Reading	Failure free Reading. (n.d.). Failure Free Reading research findings: OhioReads 2000-01 school year results. Retrieved August 26, 2006 from http://www.failurefree.com/downloads/FFR_OHReads_Set_1.pdf (Study: Hamden Elementary).	No control group
Failure Free Reading	Failure free Reading. (n.d.). Failure Free Reading research findings: OhioReads 2000-01 school year results. Retrieved August 26, 2006 from http://www.failurefree.com/downloads/FFR_OHReads_Set_1.pdf (Study: Seacrest Elementary).	No control group
Failure Free Reading	Failure free Reading. (n.d.). Failure Free Reading research findings: OhioReads 2000-01 school year results. Retrieved August 26, 2006 from http://www.failurefree.com/downloads/FFR_OHReads_Set_1.pdf (Study: Shumaker Elementary).	No control group
Failure Free Reading	Failure Free Reading. (n.d.). Research findings concerning the impact of the Failure Free Reading program on at-risk and special education lowest literacy students. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Accelerated growth curve).	No control group

Failure Free Reading	Failure Free Reading. (n.d.). Research findings concerning the impact of the Failure Free Reading program on at-risk and special education lowest literacy students. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Learning curve of at-risk and special education students).	No control group
Failure Free Reading	Failure Free Reading. (n.d.). Research findings concerning the impact of the Failure Free Reading program on at-risk and special education lowest literacy students. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Sustaining growth).	No control group
Failure Free Reading	Failure Free Reading. (n.d.). Research findings concerning the impact of the Failure Free Reading program on at-risk and special education lowest literacy students. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025). (Study: Transfer to standardized measuring instruments).	No control group
Failure Free Reading	Northwest Regional Educational Laboratory. (2003). Brightmoor America Reads challenge: Detroit, MI. (Available from Failure Free Reading, 140 Cabarrus Ave., W., Concord, NC 28025).	No control group
Family Reading Program	Lengyl, J., & Baghban, M. (1980). The effects of a family reading program and SSR on reading achievement and attitudes. ED211925	Insufficient sample
Fast ForWord	Gillam, R., Crofford, J., Gale, M., & Hoffman, L. (2001). Language change following computer-assisted language instruction with Fast ForWord or Laureate Learning Systems Software. <i>American Journal of Speech-Language Pathology</i> , 10(3), 231-247.	Duration < 12 weeks
Fast ForWord	Hall, L.S. (2002). Dallas Independent School District, final report: Scientific Learning/Fast ForWord program: 2001-2002 (Report No. REIS02-168-2). Retrieved from the Scientific Learning Corporation web site: http://www.scilearn.com/alldocs/rsrch/30051DallasEduRpt.pdf .	No control group
Fast ForWord	Overbay, A., & Baenen, N. (2003). Fast ForWord® evaluation, 2002-03 (Eye on Evaluation, E&R Report No. 03.24). Raleigh, NC: Wake County Public School System.	Pretest equivalency not established
Fast ForWord	Scientific Learning Corporation (2003). Cherry Hill Public School District, New Jersey. Oakland, CA: Author.	Duration < 12 weeks

Fast ForWord	Scientific Learning Corporation (2007). Improved Early Reading Skills by Students in Lancaster County School District who used Fast ForWord® to Reading 1, MAPS for Learning: Educator Reports, 11(5): 1-5.	No untreated control group
Fast ForWord	Scientific Learning Corporation. (1999). National field trial results. Oakland, CA: Author.	Pretest equivalency not established
Fast ForWord	Scientific Learning Corporation. (2002). Scientifically based reading research and the Fast ForWord products: Research implications for effective language and reading intervention. (Education Department Report #127). Oakland, CA: Author.	No control group
Fast ForWord	Scientific Learning Corporation. (2003). Improved language and early reading skills of English language learners in the Paradise Valley Unified School District who used Fast ForWord Language. Maps for Learning: Educator Reports, 7 (7), 1-5.	No control group
Fast ForWord	Scientific Learning Corporation. (2003). School District 154, Illinois. Oakland, CA: Author.	No control group
Fast ForWord	Scientific Learning Corporation. (2004). Improved cognitive and language skills by students in the Niagara Falls City School District who used Fast ForWord products. Maps for Learning: Educator Reports, 8 (35), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2004). Improved language and early reading skills by students in the Cherry Hill Public School District in New Jersey who used Fast ForWord Language. Maps for Learning: Educator Reports, 8 (4), 1-4.	Duration < 12 weeks
Fast ForWord	Scientific Learning Corporation. (2004). Improved language and reading skills by students at Title I schools who used Fast ForWord products. Maps to Learning: Educator Reports, 8 (16), 1-8.	No control group
Fast ForWord	Scientific Learning Corporation. (2004). Improved language and reading skills by students in the Puyallup School District who used Fast ForWord products. Maps to Learning: Educator Reports, 8 (11), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2004). Improved language skills by children with low reading performance who used Fast ForWord Language. Maps for Learning: Product Report, 3 (1), 1-13.	Duration < 12 weeks
Fast ForWord	Scientific Learning Corporation. (2004). Improved language skills by students at Mora School District who used Fast ForWord Language. Maps to Learning: Educator Reports, 8 (19), 1-4.	Insufficient sample

Fast ForWord	Scientific Learning Corporation. (2004). Improved language skills by students in Shelby County School District who used fast ForWord products. Maps for Learning: Educator Report, 8 (26), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2004). Improved language skills by students in the Brainerd School District who used fast ForWord products. Maps for Learning: Educator Report, 8 (29), 1-5.	Duration < 12 weeks
Fast ForWord	Scientific Learning Corporation. (2004). Improved language skills by students in the Pottsville School District who used fast ForWord products. Maps for Learning: Educator Report, 8 (24), 1-4.	No control group
Fast ForWord	Scientific Learning Corporation. (2004). Improved reading comprehension by students in the Trumbull Public Schools who used fast ForWord products. Maps for Learning: Educator Reports, 8 (34), 1-5.	No control group
Fast ForWord	Scientific Learning Corporation. (2004). Improved reading skills by students who used Fast ForWord to Reading 3. Maps for Learning: Product Reports, 8 (3), 1-3.	Duration < 12 weeks
Fast ForWord	Scientific Learning Corporation. (2004). Increased reading achievement by students in Pocatello/Chubbuck school district 25 who used Fast ForWord products. Maps for Learning: Educator Report, 8 (32), 1-3.	No control group
Fast ForWord	Scientific Learning Corporation. (2004). Reading skills improved by students at Centerville Elementary School who used Fast ForWord to Reading 3. Maps for Learning: Educator Reports, 8 (2), 1-5.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved academic achievement by students in the Christina School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (7), 1-10.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved early reading skills by students in three districts who used FastForWord to Reading 1, MAPS for Learning: Product Reports, 9(1), 1-5.	Inadequate outcome measure
Fast ForWord	Scientific Learning Corporation. (2005). Improved oral language skills by students in the Weymouth Public Schools who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (18), 1-5.	No control group

Fast ForWord	Scientific Learning Corporation. (2005). Improved reading achievement by students in a Texas school district who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (24), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading achievement by students in Oregon City School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (20), 1-5.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading achievement by students in the Miami-Dade County Public Schools who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (10), 1-5.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading achievement by students in the Washington Local School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (9), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Clover Park School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (6), 1-7.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Hingham Public School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (26), 1-4.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the La Jolla Independent School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (32), 1-7.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Monessen City School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (23), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Portsmouth School District who used Fast ForWord products. Maps for Learning: Educator Reports, 10 (8), 1-4.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Poteau School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (16), 1-5.	No control group

Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the School District of Philadelphia who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (31), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Todd County School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (14), 1-8.	Duration <12 weeks
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the United Independent School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (27), 1-5.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Weakley County School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (21), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Wichita Falls Independent School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (13), 1-4.	no control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved reading skills by students in the Williamsport Area School District who used Fast ForWord products. Maps for Learning: Educator Reports, 9 (15), 1-4.	No control group
Fast ForWord	Scientific Learning Corporation. (2005). Improved Early Reading Skills by Students in Springfield City School District who used Fast ForWord® to Reading 1, MAPS for Learning: Educator Reports, 9(25)1-5.	Duration < 12 weeks
Fast ForWord	Scientific Learning Corporation. (2006). Improved language and reading skills by students in NSW Australia who used Fast ForWord products. Maps for Learning: Educator Reports, 10 (3), 1-5.	No control group
Fast ForWord	Scientific Learning Corporation. (2006). Improved reading skills and behavior in primary school students who used Fast ForWord Language at a Singapore Public School. Maps for Learning: Educator Reports, 10 (5), 1-6.	No control group
Fast ForWord	Scientific Learning Corporation. (2006). Improved Early Reading Skills by Students in Manchester City School District who used Fast ForWord® Products, MAPS for Learning: Educator Reports, 10(6): 1-6.	Duration < 12 weeks

Fast ForWord	Scientific Learning Corporation. (2006). Improved Reading Skills by Students in the Hicksville Exempted Village School District who used Fast ForWord® Products, MAPS for Learning, Educator Reports, 10(23): 1-6.	Duration < 12 weeks
Fast ForWord	Scientific Learning Corporation. (n.d.). Summary of data collected and analyzed by the Sallas Independent School District (Research and Outcomes Department Report #129). Texas: Author.	No control group
Fast ForWord	Troia, G. (2004). Migrant Students with Limited English Proficiency: Can Fast ForWord Language Make a Difference in Their Language Skills and Academic Achievement? <i>Remedial and Special Education</i> , 25(6), 353-366	Duration < 12 weeks
Fast ForWord	Troia, G., & Whitney, S. (2002). A close look at the efficacy of Fast ForWord Language for children with academic weaknesses. <i>Contemporary Educational Psychology</i> , 28(4), 465-494.	Duration < 12 weeks
Fast Start Reading	Rasinski, T., & Stevenson, B.(2005). The effects of Fast Start Reading: A fluency-based home involvement reading program, on the reading achievement of beginning eaders. <i>Reading Psychology</i> , 26, 109-125.	Duration < 12 weeks
Fast Track Action Reading Program	City of Montgomery, Alabama. (n.d.). Test interpretation. Author. (Available from Action Reading, Lost Technology, LLP, 7908 Mill Creek Circle, West Chester, OH 45069).	No control group
FORI	National Reading Research Center(1997). Report no. 79	No control group
Four Block Framework	Wang, W., & Ross, S.M. (2003). <i>Comparisons between elementary school programs on reading performance: Albuquerque Public Schools</i> . Memphis, TN: University of Memphis, Center for Research on Educational Policy.	Pretest equivalence not established
Four Blocks	Cunningham, P.M., Hall, D.P., & Defee, M. (1999). Non-ability grouped, multi instruction: Eight years later. http://www.schoolchang	No control group
4Blocks	Morris, D. (2001). A comparison of first grade children that receive instruction with the "Working with Words" block of the Four Blocks literacy model and first graders who have not received this instruction. Unpublished master's thesis, Johnson Bible College.	Duration <12 wks
general cai	Davidson, J., Elcock, J., & Noyes, P. (1996). A Preliminary Study of the Effect of Computer-Assisted Practice on Reading Attainment. <i>Journal of Research in Reading</i> , 19(2), 102-110.	Duration < 12 weeks

GLOBAL Learning Systems, SuccessMaker, Jostens	Underwood, J., Cavendish, S., Garnder, J., Harrison, C., Lewis, A., Rodrigues, S., Passey, D., Fitz-Gibbon, C., & Defty, NDowling, S. (1996). <i>Integrated learning systems: A report of Phase II of the pilot evaluation of ILS in the UK</i> . Leicester University.	Insufficient information
Grow into Reading	Great Source (n.d.) Grow into Reading: Research base and program efficacy	No control group
Guided Discovery LOGO	Robinson, M., Gilley, W., & Uhlig, G. (1988). The effects of Guided Discovery Logo on SAT performance of first grade students. <i>Education</i> , 109 (2), 226-231.	No control group
Guided Reading, Reading-While-Listening, and CAI	Reitsma, P. (1988). Reading Practice for Beginners: Effects of Guided Reading, Reading-While-Listening, and Independent Reading with Computer-Based Speech Feedback. <i>Reading Research Quarterly</i> , 23(2), 219-235.	Duration <12 wks
Harcourt Reading Program	Center for Innovation in Assessment. (1999). A study of the instructional effectiveness of the Harcourt Reading program. Harcourt Reading Technical Report # 2. Orlando, FL: Harcourt School Publishers. (ERIC Document Reproduction Service No. ED431173)	No control group
Harcourt Reading Program	Educational Research Institute of America, (2006). A study of the instructional effectiveness of the Harcourt school publishers reading program in 58 New York City Reading First schools.	No adequate control group
Harcourt Reading Program	Greene, B.G., & Conner, J.M. (2000). A report of the instructional effectiveness of the Harcourt Reading Program at the kindergarten grade level. Technical report. Bloomington, IN: ERIA.	No control group
Headsprout	Clarfield, J., & Stoner, G. (2005). The effects of computerized reading instruction on the academic performance of students identified with ADHD. <i>School Psychology Review</i> , 34, 246-255.	No control group
Headsprout Early Reading	Headsprout. (n.d.). Students using Headsprout Early Reading achieve substantial reading gains: Randomized control and multi-year studies show Headsprout Early Reading produces significant reading outcomes for kindergarten and first grade. Retrieved from http://static/headsprout.com/pdf/headsprout%20nyc%20substantial%20reading%20gains%20-%20preliminary%20results.pdf	Insufficient information
Headsprout Early Reading	Layng, T., Twyman, J., & Stikeleather, G. (2004). Engineering discovery learning: The contingency adduction of some precursors of textual responding in a beginning reading program. <i>Analysis of Verbal Behavior</i> , 20, 99-109.	No control group

Headsprout Early Reading	Layng, T., Twyman, J., & Stikeleather, G. (2004). Selected for success: How Headsprout Reading Basics teaches beginning reading. In D.J. Moran & R. Malott (Eds.), <i>Empirically supported educational methods</i> . St. Louis, MO: Elsevier Science/Academic Press.	No control group.
Headsprout, Lexia	Clarfield, J. (2006). Examining the Efficacy of Two Computerized Reading Programs for Kindergarten Students At-Risk for Reading and Behavior Problems. Unpublished doctoral dissertation, University of Massachusetts Amherst.	Insufficient sample size
High/Scope	Schweinheart, L.J., & Wallgren, C.R. (1993). Effects of a A.8 Follow Through Program on school achievement. <i>Journal of Research in Childhood Education</i> , 8(1), 43-56.	Pretest equivalency not established at baseline
Houghton Mifflin	Barabe, A. (2006). <i>Implementation of the Houghton Mifflin reading program in a first grade classroom</i> . Unpublished masters thesis, Pacific Lutheran University.	No control group
Hypermedia	Boone, R., Higgins, K., Notari, A., & Stump, C. (1996). Hypermedia Pre-Reading Lessons: Learner-Centered Software for Kindergarten. <i>Journal of Computing in Childhood Education</i> , 7(1/2), 36-69.	No adequate outcome measure; Duration less than 12 weeks
Hypermedia	Higgins, K., & Boone, R. (1991). Hypermedia CAI: A supplement to an elementary basal reading program. <i>Journal of special education technology</i> , 11(1), 1-15.	Insufficient information
Immersion in print/teacher readiness vs traditional approach	Reutzel, D.R., Oda, L.K., & Moore, B.H. (1989). Developing print awareness: The effect of three instructional approaches on kindergartners' print awareness, reading readiness, and word reading. <i>Journal of Reading Behavior</i> , 21, 197-217.	Pretest equivalency not established
Impress Method	Hollingsworth, P. (1970). An experiment with the impress method of teaching reading. <i>The Reading Teacher</i> , 24, 112-114.	Insufficient sample
Integrated language arts vs phonics basals	Dillon, P. (1997). A study comparing integrated language arts and strong phonics basal programs in first grade reading instruction. Unpublished Master's thesis, Salem-Teikyo University.	Pretest equivalence not established
Integrated Reading-Writing and DISTAR	Traweek, D., & Berninger, V. (1997). Comparisons of beginning literacy programs: Alternative paths to the same learning outcome. <i>Learning Disability Quarterly</i> , 20 (2), 160-68.	E and C groups > 1/2 SD apart at baseline
IntelliTools (but not IT Reading)	Howell, R., Erikson, K., Stanger, C., & Wheaton, J. (2000). Evaluation of a computer-based program on the reading performance of first grade students with potential for reading failure. <i>Journal of Special Education Technology</i> , 15, 5-14.	E and C groups > 1/2 SD apart at baseline

IntelliTools Reading	Erickson, K., & Stanger, C. (n.d.). Balanced literacy instruction and an integrated beginning reading program. Retrieved from IntelliTools web site: http://store.cambiumlearning.com/Resources/Research/pdf/itc_Research_BalancedLit_01.pdf .	Pretest equivalency not established
Invitations to Literacy	EDSTAR, Inc. (2002). Houghton Mifflin Invitations to Literacy California reading performance evaluation. Raleigh, NC: Author.	Pretest equivalency not established
Invitations to Literacy	EDSTAR, Inc. (n.d.). Technical report: Houghton Mifflin Invitations to Literacy California reading performance evaluation. Raleigh, NC: Author.	Pretest equivalency not established
Jolly Phonics	Stuart, M. (1999). Getting ready for reading: Early phoneme awareness and phonics teaching improves reading and spelling in inner-city second language learners. <i>British Journal of Educational Psychology</i> , 69, 587-605.	Pretst differences > 1/2 S
Jolly Phonics	Sumbler, K. (1999). Phonological awareness combined with explicit alphabetic docing instruction in kindergarten: Classroom observations and evaluation. Unpublished doctoral dissertation, University of Toronto.	Pretest equivalency not established
Jostens/ TLC (teaching and learning with computers)	Clouse, R. (1991). Teaching and learning with computers: a classroom analysis. <i>Journal of Educational Technology Systems</i> , 20, 281-302.	No adequate control group
K2	Robinson-Evans, J.M. (2006). <i>An investigation of the effects of an early reading intervention on students with disabilities and those at-risk of reading failure</i> . Unpublished doctoral dissertation, Ball State University.	No adequate control group
K-2 Learning Milestones	Achievement Technologies. (2003). Research-based K-2 Learning Milestones e-Workbook Software with proven evidence of success. Columbia, MD: Author. (Study 1)	Duration < 12 wks
K-2 Learning Milestones	Achievement Technologies. (2003). Research-based K-2 Learning Milestones e-Workbook Software with proven evidence of success. Columbia, MD: Author. (Study 2)	Pretest equivalency not established
Kentucky Reading Project (KRP)	Almasi, Costanzo, Crout, Frank, Harrison, Owczarzak & Priddy (2007). An Evaluation of the Impact of the Kentucky Reading Project on Teacher and Student Growth 2006-07	No control group
Kindercamp	Cleary, T. (2001). Providing phonemic awareness instruction to pre-first graders: An extended year kindergarten program. Unpublished doctoral dissertation, University of Rhode Island and Rhode Island College.	Pretest equivalency not established

LACES, HOSTS	Musti-Rao, S. (2005). The effects of a supplemental early reading intervention with urban Kindergarten and first grade students: A preventive approach. Unpublished dissertation. The Ohio State University: Columbus, Ohio.	No control group
Ladders to Literacy	O'Hearn-Curran, M. (1999). What we need to know about linking assessment and phonemic awareness training in the classroom we can learn in kindergarten. Dissertation Abstracts International, 60 (11), 3904A. (UMI No. 9950194)	Independent variable unclear
Land of the Letter People vs HBJ Treasury of Literature	Coss, F.C. (1999). <i>A comparison of Language Arts curricula</i> . Unpublished doctoral dissertation, Southern Connecticut State University.	Insufficient sample
Language Experience Approach	Buckner, J. et al. (1978). Supportive evidence for the language experience approach at the kindergarten level. Graduate Student Association Journal, 1, 15-29.	Pretest equivalency not established
Language of instruction	Leslie Reese, Claude Goldenberg, William Saunders. (2006). Variations in Reading Achievement among Spanish-Speaking Children in Different Language Programs: Explanations and Confounds. The Elementary School Journal, 106(4), 363-386. Retrieved October 5, 2007, from ProQuest Education Journals database. (Document ID: 1009409561).	Pretest equivalency not established
Language Vocabulary Acquisition Approach	Murphy, J. (2004). An examination of the LVA approach to teaching reading. Educational Forum, 69 (1), 27-33.	Insufficient information; pretest equivalency not established
Language, Literacy, & Vocabulary!	McNabb, M. (2006). Evaluation Study of Language, Literacy, & Vocabulary! Spring 2006 Pilot. Learning Gauge, Inc.	No adequate outcome measure
Learning Letter Sounds	McDonald, N. & Trautman, T. (). Enhancing Critical Reading Skills with Kindergartners: A Study of a Computer-Based Intervention. The American Education Corporation, Oklahoma City, OK.	Duration < 12 weeks
Learning Letter Sounds	McDonald, N. & Trautman, T. (2005). Influencing Early Literacy Skills: An Experimental Study of a Computer-Based Intervention. The American Education Corporation, Oklahoma City, OK.	Duration < 12 weeks
Learning Together	Johnson, Johnson, & Anderson (1976)	Duration < 12 weeks
Learning Together	Skon, Johnson, & Johnson (1981)	Duration < 12 weeks
Letter People	Crosswhite, L., & Sieradzki, C. (2003). Efficacy study of the Letter People Programs 2000-2002. (Available from Abrams & Co. Publishers, Inc. POB 10025, Waterbury, CT 06725).	No control group

Letter People	Letter People. (2005). Letter People study. Rutherford, TN. (Available from Abrams & Company Publishers, Inc. POB 10025, Waterbury, CT 06725).	No control group
Letter People	Letter People. (2005). Letter People study-Kent, WA. (Available from Abrams & Co. Publishers, Inc. POB 10025, Waterbury, CT 06725).	No control group
Lexia	Kutz, Debra Ann (2005) The use of the Lexia Phonics computer software program for children in kindergarten and first grade. Ed.D. dissertation, Widener University, United States - Pennsylvania. Retrieved October 4, 2007, from ProQuest Digital Dissertations database. (Publication No. AAT 3167340).	Pretest differences > 1/2 std dev
Lexia Learning Systems	Macaruso, P., & Walker, A. (2008). The Efficacy of Computer-Assisted Instruction for Advancing Literacy Skills in Kindergarten Children. <i>Reading Psychology</i> , 29(3), 266.	Pretest equivalency not established
Lexia Learning Systems	MacLaughlin, A. (2003). Will a computer based phonics practice program result in higher reading and writing skills for kindergarten children? Unpublished master's thesis, Salem State College, MA.	No control group
Lightspan	Giancola, S. et al (1999). Evaluation Results of the Delaware Challenge Grant Project Lead Education Agency: Capital School District. Newark, DE: University of Delaware.	No adequate control group
Lightspan	Gwaltney, L. (2000). Year three final report the Lightspan Partnership, Inc. Achieve Now Project: Unified School District 259, Wichita Public Schools. Wichita, KS: Allied Educational Research and Development Services.	No adequate outcome measure
LiPS	Colon, E. (2006). The utility of the Lindamood Phoneme Sequencing Program for classroom-based reading instruction. Unpublished dissertation.	No untreated control group
Listen Look Learn	Moodie, A. (1972). An Evaluation of the Listen Look Learn Program at Tecumseh Elementary School During 1971-72. Vancouver Board of School Trustees (British Columbia). Dept. of Planning and Evaluation.	Pretest equivalence not established
Listening comp vs Phonemic Awareness	Solari, Emily J. (2006) Effects of listening comprehension versus phonological awareness interventions for kindergarten English learners. Ph.D. dissertation, University of California, Santa Barbara, United States -- California. Retrieved September 28, 2007, from ProQuest Digital Dissertations database. (Publication No. AAT 3245937).	Duration < 12 weeks

Literacy Collaborative	Clayburn, A. D. (2005). The effect of the primary Literacy Collaborative on the reading achievement of kindergarten, first grade, and second grade students. Dissertation Abstracts International, 66 (02A), 533. (UMI No. 3164981)	Pretest equivalency not established
Literacy Collaborative	Pinnell, G. (1998). ELLI research report. Columbus: Ohio State University, The Early Literacy Learning Initiative.	No control group
Literacy Collaborative	Scharer, P., Williams, E., & Pinnell, G. (2001). Literacy Collaborative 2001 research report. Columbus: Ohio State University, Literacy Collaborative.	No control group
Literacy Collaborative	Southwest Educational Development Laboratory. (2003). Oklahoma commission for teacher preparation: Literacy First phase IV school program report on progress. Austin, TX: Author.	No control group
Literacy Collaborative	Williams, E. (2002). The power of data utilization in bringing about systemic school change: Presidential address. <i>Mid-Western Educational Researcher</i> , 15(1), 4-10.	No control group
Literacy Collaborative	Williams, E. (2004). Literacy Collaborative 1999 research report. Columbus: Ohio State University, Literacy Collaborative.	No control group
Literacy Collaborative	Williams, E., Scharer, P., & Pinnell, G. (2000). Literacy Collaborative 2000 research report. Columbus: Ohio State University, Literacy Collaborative.	No control group
Literacy First	Abella, H. (2005). <i>An evaluation of student success after the completion of primary grade level academic intervention programs in the Caesar Rodney School District</i> . Unpublished doctoral dissertation, Wilmington College.	Pretest equivalency not established
Logo and general cai	Clements, D. (1986). Effects of Logo and CAI Environments on Cognition and Creativity. <i>Journal of Educational Psychology</i> , 78(4), 309-318.	Insufficient sample
MAPS	Bergan, J.R., Sladeczek, I.E., Schwarz, R.D., & Smith, A.N. (1991). Effects of a measurement and planning system on kindergarten's cognitive development and educational programming. <i>American Educational Research journal</i> , 28(3), 683-714.	Duration < 12 weeks
Marilyn Adams Phonemic Awareness Curriculum	Downie, K.S. (2003). <i>The change process in a school district: Impact of a balanced literacy program and teacher perceptions of their professional growth and student achievement</i> . Unpublished doctoral dissertation, Indiana University of Pennsylvania.	No control group

mastery learning	Null, D.H. (1990). The effects of learning for mastery on first and second grade decoding skill and general reading achievement. Unpublished doctoral dissertation, Indiana University.	Pretest differences > 1/2 std dev
Modeling	Compton, D.L. (2000) Modeling the response of normally achieving and at-risk first grade children to word reading instruction. <i>Annals of Dyslexia</i> 50(1), 53	No adequate control group; > 1/2 sd apart at baseline
Montessori Method & Balanced Literacy	McCladdie, K. (2006). A Comparison of the Effectiveness of the Montessori Method of Reading Instruction and the Balanced Literacy Method for Inner City African American Students. Unpublished doctoral dissertation, Saint Joseph's University, PA.	Pretest equivalency not established
Multiple strategies	Wellman, J. (2006). <i>The effects of a systematic, explicit literacy program on the reading performance of kindergarten students</i> . Unpublished doctoral dissertation, California Polytechnic State University.	No adequate outcome measure
Multiple strategies	Daly, E.J., III, Martens, B.K., Hamler, K.R., Dool, E.J., & Eckert, T.L. (1999). A brief experimental analysis for identifying instructional components needed to improve oral reading fluency. <i>Journal of Applied Behavior Analysis</i> , 32, 83-94.	Insufficient sample
My Reading Coach	Mindplay. (n.d.). My Reading Coach case studies and pilot results. (Available from Mindplay Educational Software, 440 S. Williams Blvd., Suite 206, Tucson, AZ 85711).	No control group
My Reading Coach	Mindplay. (n.d.). My Reading Coach Ocotillo Elementary School pilot results. (Available from Mindplay Educational Software, 440 S. Williams Blvd., Suite 206, Tucson, AZ 85711).	No control group
My Reading Coach	Mindplay. (n.d.). Pilot results for My Reading Coach Computer Assisted Instruction program. (Available from Mindplay Educational Software, 440 S. Williams Blvd., Suite 206, Tucson, AZ 85711).	No control group
My Reading Coach	Mindplay. (n.d.). Scientifically-based reading research: Mindplay's My Reading Coach. (Available from Mindplay Educational Software, 440 S. Williams Blvd., Suite 206, Tucson, AZ 85711).	No control group
Neuhaus Reading Readiness program	Dean, E.O (2007). The efficacy of systematic, explicit literacy instruction in kindergarten and first grade. Ph.D. dissertation, Texas A&M University	Pretest equivalency not established
New Century Integrated Instructional System	Weinstock, R. (2004). A Title I tale: High reading/math gains at low cost in Kansas City, KS. <i>Phi Delta Kappan</i> , 632-634.	No control group

Onward to Excellence	Northwest Regional Educational Laboratory. (1989). Success for all students: How "Onward to Excellence" uses R&D to improve schools. Portland, OR: Author. (ERIC No. ED314865).	No control group
Open Court Reading	Foorman, B. R., Francis, D. J., Fletcher, J. M., Schatschneider, C., & Mehta, P. (1998). The role of instruction in learning to read: Preventing reading failure in at-risk children. <i>Journal of Educational Psychology</i> , 90, 37-55.	Pretest equivalency not documented/established
Open Court Reading	Walk, R.S. (2005). <i>Associations involving Open Court Reading® in kindergarten and student performance on standardized assessments in reading in a Tennessee school system</i> . Unpublished doctoral dissertation, East Tennessee State University.	Pretest equivalency not documented/established
Open Court vs Word Study curriculum	Hayes, L. (2004). <i>A comparison of two systematic approaches to phonics and spelling instruction in beginning reading: A basal phonics program and word study</i> . Unpublished doctoral dissertation, University of Virginia.	No untreated control group
Open Court	Westat (2001). <i>Report on the final evaluation of the city-state partnership: New Baltimore City Board of School Commissioners and the Maryland State Department of Education</i> . Rockville, MD: Westat.	No adequate control group
Open Court, Direct Instruction	Jordan, N.L., Green, J., & Tuyay, S.. (2005). Basal Readers and Reading as Socialization: What Are Children Learning? <i>Language Arts</i> , 82(3), 204-213.	no adequate outcome measure
Open Court and PALS	Lane, K.L., Little, M.A., Redding-Rhodes, J., Phillips, A., Welsh, M.T. (2007). Outcomes of a teacher-led reading intervention for elementary students at risk for behavioral disorders. <i>Exceptional Children</i>	Insufficient sample
Optimize + Spelling vs Open Court	Simmons, D. C., Kame'euni, E. J., Harn, B. A., Thomas-Beck, C., Edwards, L. L., Coyne, M. D., & Peterson, K. (2003). A summary of the research findings of Project Optimize: Improving the early literacy skills of kindergarteners at-risk for reading difficulties using effective design and delivery principles. Retrieved May 6, 2004, http://reading.uoregon.edu/curricula/opt_research.pdf	Pretest equivalency not documented
Orton Gillingham	Scheffel, D., Shaw, J., & Shaw, R. (2008, Fall2008). THE EFFICACY OF A SUPPLEMENTAL MULTISENSORY READING PROGRAM FOR FIRST-GRADE STUDENTS. <i>Reading Improvement</i> , 45(3), 139-152. Retrieved December 4, 2008, from Academic Search Premier database.	Pretest equivalence not established/documented

Oxford Reading Tree for Clicker	Karemaker, A., Pitchford, N.J., & O'Malley, C. (In press). Does whole-word multimedia software support literacy acquisition? <i>Reading and Writing: An Interdisciplinary Journal</i> .	Duration < 12 weeks
Paired Reading	Muldowney, C. (1995). The effect of a paired reading program on reading achievement in a first grade classroom. Unpublished Master's thesis, Kean College of New Jersey.	Duration < 12 weeks
Paired Reading	Vitolo, D. (1995). The effects of a paired reading program on first grade reading achievement. Masters Thesis, Kean University.	Duration <12 wks
PALS	Allor, J., Fuchs, D., & Mathes, P. (2001). Do students with and without lexical retrieval weaknesses respond differently to instruction? <i>Journal of Learning Disabilities</i> , 34(3), 264-275.	Subsumed in later report; Pretest differences > 1/2 std dev apart
PALS	Lane, K.L., Wehby, J., Menzies, H.M., Gregg, R.M., Doukas, G.L., Munton, S.M. (2002). Early Literacy Instruction for First-Grade Students At-Risk for Antisocial Behavior Education & Treatment of Children, Vol. 25, 2002	Insufficient sample
PALS	McMaster, K. L., Kung, H., Han, I., & Cao, M. (2008). Peer-assisted learning strategies: A "Tier 1" approach to promoting responsiveness to beginning reading instruction for English learners. <i>Exceptional Children</i> , 74 (3), 194-214)	No adequate control group
PALS	Pearson, J.J.M. (2004). The effect of peer-assisted literacy strategies on the social standing of first-grade readers. Unpublished doctoral dissertation, University of Houston.	Inadequate outcome measure
PALS	Petursdottir, A.G. (2006) Brief experimental analysis of early reading interventions. Unpublished doctoral dissertation, University of Minnesota.	Duration < 12 weeks
PALS	Falk, K.B. & Wehby, J.H. (2001). The effects of peer-assisted learning strategies on the beginning reading skills of young children with emotional or behavioral disorders. <i>Behavioral Disorders</i> , 26(4), 344-359.	Duration < 12 weeks
Parent involvement	Steiner, Lilly Manske (2008) Effects of a school-based parent and teacher intervention to promote first-grade students' literacy achievement. Ed.D. dissertation, Boston University	Insufficient sample
Parent involvement	Faires, J., Nichols, W., & Rickelman, R. (2000). Effects of parental involvement in developing competent readers in first grade. <i>Reading Psychology</i> , 21 (3), 195-215	Insufficient sample

PATR	Gruba, G.G. (1997). <i>Evaluating dynamic and static measurement sensitivity to the effects of a phonological awareness intervention for kindergarten children</i> . Unpublished doctoral dissertation, University of Oregon.	Duration < 12 weeks
PAYC (phonemic awareness in young children), PATR (Phonological awareness training for Reading, Primeaux	Biwer, D.L. (2002). <i>Effects of three phonological awareness programs on kindergarten students identified as at risk for reading failure</i> . Unpublished doctoral dissertation, Loyola University of Chicago.	Duration <12 weeks
Peabody Lang Development Kit	Milligan, ., & Potter, R. (1971). The Peabody Language Development Kit and its function in a language development and pre-reading program: A review. <i>Reading World</i> , 11 (2), 130-36.	Pretest equivalency not established
Phoneme segmentation training	Ball, E.W. & Blachman, B.A. (1988). Phoneme segmentation training: Effects on reading readiness. <i>Annals of Dyslexia</i> , 38, 208-225	Duration < 12 weeks
Phonemic Awareness in Young Children	Abshire, S. (2006). <i>Exploring implicit versus explicit methods of teaching phonemic awareness instruction to Kindergarten students</i> . Unpublished doctoral dissertation, Louisiana State University and Agricultural and Mechanical College.	Duration < 12 weeks, no untreated control group.
Phonological Awareness Training	Ayers, L. R. (1998). Phonological awareness training of kindergarten children: Three treatments and their effects. In C. Weaver (Ed.), <i>Reconsidering a balanced approach to reading</i> (pp. 209-269). Urbana, IL: National Council of Teachers of English.	Insufficient information
Phonological Awareness Training	Blachman, B.A. 1987. An alternative classroom reading program for learning disabled and other low-achieving children. Pp. 49-55 in <i>Intimacy with Language: A Forgotten Basic in Teacher Education</i> , W. Ellis, ed. Baltimore: Orton Dyslexia Society.	Pretest equivalency not established
Phonological Awareness Training	Brady, S., Fowler, A., Stone, B., & Winbury, N. (1994). Training phonological awareness: A study with inner-city kindergarten children. <i>Annals of Dyslexia</i> , 44, 26-59.	Pretest equivalency not established
Phonological Awareness Training	Brennan, F., & Ireson, J. (1997). Training phonological awareness: A study to evaluate the effects of a program of metalinguistic games in kindergarten. <i>Reading and Writing: An Interdisciplinary Journal</i> , 9, 241-263.	Insufficient sample size
Phonological Awareness Training	Cunningham, A. E. (1990). Explicit versus implicit instruction in phonemic awareness. <i>Journal of Experimental Child Psychology</i> , 50, 429-444.	Insufficient sample size

Phonological Awareness Training	Johnston, J.C. (2003). <i>The effects of direct, explicit, and systematic instruction in phonological awareness in literacy acquisition for kindergarten and first grade students</i> . Unpublished doctoral dissertation, Duquesne University.	No adequate outcome measure
Phonological Awareness Training	Kerr, J. (2001). <i>The development of phonological awareness in African American inner-city kindergarten students</i> . Unpublished doctoral dissertation, University of Maryland - College Park.	Insufficient sample
Phonological Awareness Training	Kozminsky, L. & Kozminsky, E. (1995). The effects of early phonological awareness training on reading success. <i>Learning and Instruction</i> , 5, 187-201.	Insufficient sample
Phonological Awareness Training	Leafstedt, J.M., Catherine R. Richards, Michael M. Gerber. (2004) Effectiveness of Explicit Phonological-Awareness Instruction for At-Risk English Learners. <i>Learning Disabilities Research and Practice</i> 19:4, 252	Pretest differences > 1/2 std dev apart
Phonological Awareness Training	Thompson, G.B, and Johnston, R.S. (2007) Visual and orthographic information in learning to read and the influence of phonics instruction. <i>Reading and Writing</i> , 20, 859-884.	Pretest differences > 1/2 std dev apart
Phonological Awareness Training	Thornton, L., & Vinzant, R. (2000, November). The effects of phonemic awareness instruction in first grade on the reading scores of rural primary students. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Bowling Green, KY.	Pretest equivalency not established
Phonics for Reading	Boone, B.A. (2004). <i>A reading intervention for first grade students at-risk for reading failure</i> . Unpublished doctoral dissertation, California State University, Fresno.	Duration < 12 weeks
phonics vs child centered language	Eddowes, A. (1990). Teaching reading in kindergarten: Two contrasting approaches. <i>Reading Improvement</i> , 27 (3), 220-223.	Pretest equivalency not established
Plato	Bauserman, K.L., Cassady, J.C., Lawrence L.S., & Stroud, J.C. (2005). Kindergarten Literacy Achievement: The Effects of the PLATO Integrated Learning System. <i>Reading Research and Instruction</i> , 44(4), 49-60.	Duration < 12 weeks
PLATO FOCUS	Grehan, A. & Ross, S. M. (2004). <i>An evaluation of the effects of FOCUS on first grade reading achievement in a Title I elementary school</i> . Memphis, TN: Center for Research in Educational Policy.	Pretest equivalency not established; inadequate outcome measure

Prediction	Schatschneider, C., Jack M. Fletcher, David J. Francis, Coleen D. Carlson, Barbara R. Foorman. (2004) Kindergarten Prediction of Reading Skills: A Longitudinal Comparative Analysis. <i>Journal of Educational Psychology</i> 96:2, 265	No control group
Prediction	Schleider, M.J. (2006). Predicting responsiveness-to-intervention in reading from curriculum-based, social skill and problem behavior measurements. Unpublished doctoral dissertation, The University of North Carolina at Charlotte.	No control group
Professional development	Malone, K. (2007). Impact of structured professional development in Reading First schools on student achievement as evidenced in DIBELS. Ed.D. dissertation, Union University	No control group
Project CHILD	Butzin, S., King, F. J. (1992). An evaluation of Project CHILD. <i>Florida Technology in Education Quarterly</i> , 4(4), 45 - 63.	Pretest equivalency not established
Project CHILD	Florida TaxWatch's Comparative Evaluation of Project CHILD: Phase IV, 2005 http://www.floridataxwatch.org/projchild/projchild4.html	No adequate control group; pretest equivalence not established
Project CHILD	Kromhout, O. M. & Butzin, S. M. (1993). Integrating computers into the elementary school curriculum: An evaluation of nine Project CHILD model schools. <i>Journal of Research of Computing in Education</i> , 26(1), 55-70.	Pretest equivalency not established
Project FAST	Hampton, F., Mumford, D., & Bond, L. (1998). Parent involvement in inner-city schools: The Project FAST extended family approach to success. <i>Urban Education</i> , 33(3), 410-427.	Pretest equivalency not established
Project LISTEN's Reading Tutor	Beck, J., Jia, P., & Mostow, J. (2003, June). Assessing student proficiency in a reading tutor that listens. Paper presented at the meeting of the International Conference on User Modeling, Johnstown, PA.	No control group
Project LISTEN's Reading Tutor	Beck, J., Mostow, J., Cuneo, A., & Bey, J. (2003, July). Can automated questioning help children's reading comprehension? Paper presented at the meeting of the International Conference on Artificial Intelligence in Education, Sydney, Australia.	No control group
Project LISTEN's Reading Tutor	Jia, P., Beck, J., & Mostow, J. (2002, June). Can a reading tutor that listens use inter-word latency to assess a student's reading ability? Paper presented at the meeting of the Workshop on Creating Valid Diagnostic Assessments, San Sebastian, Spain.	Pretest equivalency not established

Project PLUS	Haager, D., & Windmueller, M. (2001). Early reading intervention for English language learners at-risk for learning disabilities: Student and teacher outcomes in an urban school. <i>Learning Disability Quarterly</i> , 24(4), 235-250.	No control group
Project Read	Enfield, M., & Greene, V. (2000). Project Read original evaluation/research summary: 1969-1989. Retrieved from Language Circle Enterprises web site: http://71.5.108.18/~projread/uploads/Louisiana%20Study%20Only.pdf . (Study: Bloomington Public Schools).	No control group
Project Read	Project Read. (2000). Project Read program replication site data 1999-2000. (Available from Project Read, Language Circle Enterprises Inc., 1620 W. 98th St., Suite 130, Bloomington, MN 55431)	No control group
Project Read	Project Read. (2001). Longitudinal Project Read Study 1994-2001: Goose Creek School District, Baytown, TX. (Available from Project Read, Language Circle Enterprises Inc., 1620 W. 98th St., Suite 130, Bloomington, MN 55431)	No control group
Project Read	Stoner, J. (1991). Teaching at-risk students to read using specialized techniques in the regular classroom. <i>Reading and Writing</i> , 3(1), 19-30.	Pretest equivalency not established
Quick Reads	Fenty, Nicole S. (2007) Effects of computer-based and print-based fluency instruction on students at risk for reading failure. Ph.D. dissertation, University of Florida, United States -- Florida. Retrieved January 15, 2008, from ProQuest Digital Dissertations database. (Publication No. AAT 3281522).	No adequate control group
Rainbow Reading Program	Pluck, M. (1995). Rainbow Reading Program: Using taped stories: The Nelson Project. Reading Forum, Term 1. Auckland: New Zealand Reading Association.	No control group
Rappin' Reader and Say Say Oh Playmate	Pinkard, N. (1999). <i>Learning to read in culturally responsive computer environments</i> . Ann Arbor, MI: Center for the Improvement of Early Reading Achievement.	No control group.
Rappin' Reader and Say Say Oh Playmate	Pinkard, N. (2001). Rappin' Reader and Say Say Oh Playmate: using children's childhood songs as literacy scaffolds in computer-based learning environments. <i>Journal of Educational Computing Research</i> , 25, 17-34.	Duration < 12 weeks
Read Naturally	Gathchel, M.K., & McGhghy, A. (2007). Read Naturally Summary:2006-2007 school year.	No control group
Read Naturally	Hasbrouk, J.E., Ihnot, C., Rogers, G.H. (1997). Read Naturally: A strategy to increase oral reading fluency. <i>Reading Research & Instruction</i>	No adequate control group

Read Naturally (translated into spanish)	De la Colina, M. G., Parker, R. I., Hasbrouck, J. E., & Lara-Alecio, R. (2001). Intensive intervention in reading fluency for at-risk beginning Spanish readers. <i>Bilingual Research Journal</i> , 25(4), 417-452.	Insufficient sample size
Read Naturally	Mesa, C. L. (2004). Effect of Read Naturally software on reading fluency and comprehension. Unpublished master's thesis, Piedmont College, Demorest, GA.	Duration < 12 weeks, Insufficient sample
Read Well, MacMillan/McGraw-Hill	Frasco, R.D. (2008). <i>Effectiveness of Reading First for English Language Learners: Comparison of two programs</i> . Unpublished doctoral dissertation, Walden University	Insufficient sample
Read Well	Simon, J. (2002). Implementation results: Technical report. Longmont, CO: Sopris West Educational Services. (Montana).	No control group
Read Well	Simon, J. (2002). Implementation results: Technical report. Longmont, CO: Sopris West Educational Services. (Oregon School 1).	No control group
Read Well	Simon, J. (2002). Implementation results: Technical report. Longmont, CO: Sopris West Educational Services. (Oregon School 2).	No control group
Read Well	Simon, J. (2002). Implementation results: Technical report. Longmont, CO: Sopris West Educational Services. (Pacific Northwest).	No control group
Read Well	Simon, J. (2002). Implementation results: Technical report. Longmont, CO: Sopris West Educational Services. (Texas).	No control group
Read, Write & Type!	Ignatz, M. (2000). The Effectiveness of the Read, Write & Type! Program in Increasing the Phonological Awareness of First Grade Students.	Pretest equivalency not established
Reader's Handbook	Great Source (n.d.) Reader's Handbook: Research base and program efficacy	No control group
Readers Theater	Gummere, Susan Leahy (2004) <i>Readers theater: Its impact on oral reading fluency, retell comprehension and motivation to read in first graders</i> . Unpublished doctoral dissertation, University of Virginia.	Duration < 12 weeks
Readers Theater, Cooperative Learning	Hollingsworth, A., Sherman, J., Zaugra, C. (2007). Increasing reading comprehension in first and second graders through cooperative learning. Saint Xavier University & Pearson Achievement Solutions, Inc.	No control group
Reading Mastery, Corrective Reading	Gunn, B., Biglan, A., Smolkowski, K., & Ary, D. (2000). The efficacy of supplemental instruction in decoding skills for Hispanic and non-Hispanic students in early elementary school. <i>The Journal of Special Education</i> , 34(2), 90-103.	Subsumed in later report

Reading Mastery (for early grades) Corrective Reading (for UE)	Keel, M., Federick, L., Hughes, T., & Owens, S. (1999). Using paraprofessionals to deliver Direct Instruction reading programs. <i>Effective School Practices</i> , 18 (2), 16-22.	No control group
Reading Mastery Plus (DI)	Marchand-Martella, N. E., Martella, R. C., Kolts, R. L., Mitchell, D., & Mitchell, C. (2006). Effects of a three-tier strategic model of intensifying instruction using a research-based core reading program in grades K-3. <i>Journal of Direct Instruction</i> , 6, 49-72.	No control group
Reading Mastery, Open Court	O'Brien, D.M. & Ware, A.M. (2002). Implementing Research-Based Reading Programs in the Fort Worth Independent School District. <i>Journal of Education for Students Placed at Risk (JESPAR)</i> , 7 (2), 167-195.	No adequate control group
Reading Recovery	Daniel, Ashley Faye (2007) Reading Recovery: An evaluation of one school district's academic outcomes. M.S. dissertation, University of Arkansas, United States -- Arkansas. Retrieved August 17, 2007, from ProQuest Digital Dissertations database. (Publication No. AAT 1442357).	Pretest differences > 1/2 SD
Reading Recovery	Fischer. Concept Phonics study in Connecticut	Insufficient sample size
Reading Recovery	Gapp, S.C. (2006). An examination of end of treatment Reading Recovery decisions and later achievement. Unpublished doctoral dissertation, University of South Dakota.	No control group
Reading Recovery	Potter, W. (2007). An analysis of the achievement gap of discontinued reading recovery students: A longitudinal study of Reading Recovery students. Unpublished doctoral dissertation, The University of Nebraska - Lincoln.	No untreated control group
Reading Recovery	Schmitt, M. (2001). The development of children's strategic processing in Reading Recovery. <i>Reading Psychology</i> , 22, 129-151.	Inadequate outcome measure
Reading Recovery	Schmitt, M. (2003). Metacognitive strategy knowledge: Comparison of former Reading Recovery children and their current classmates. <i>Literacy Teaching and Learning</i> , 7(1-2), 57-76.	Pretest equivalency not established
Reading Recovery	Spector, J.E. & Moore, P. (2003). Does phonological processing distinguish between students who are more or less responsive to Reading Recovery? <i>Literacy Teaching and Learning</i> (8)2, 1-25.	No untreated control group
Reading Recovery (and ELIC, LaRIC, CLIC)	Rowe, K.J. Factors affecting students' progress in reading: Key findings from a longitudinal study. <i>Literacy Teaching and Learning</i> , 1(2), 57-109.	Pretest equivalency not established

Reading Renaissance	Paul, T.D. (2003). <i>Guided independent reading: An examination of the Reading Practice Database and the scientific research supporting guided independent reading as implemented in Reading Renaissance</i> . Madison, WI: Renaissance Learning, Inc. Available online: < http://research.renlearn.com/research/pdfs/165.pdf >.	No control group
Reading Renaissance	Renaissance Learning. (2002). <i>Results from a three-year statewide implementation of Reading Renaissance in Idaho</i> . Madison, WI: Renaissance Learning, Inc. Available online: http://research.renlearn.com/research/pdfs/106.pdf .	No adequate control group
reading strategies	Kern, L., Killingham, B., & Vincent, S. (2002). Improving reading comprehension through the use of balanced literacy and specific comprehension strategies. Unpublished master's thesis, St. Xavier University.	No control group
Reading Their Way	Donat, D. (2006). Reading Their Way: A balanced approach that increases achievement. <i>Reading & Writing Quarterly</i> , 22: 305–323	Pretest equivalency not established
Reciprocal Teaching vs Shared Reading	Mandel, E. (2008). Vocabulary acquisition techniques for grade one: An experimental investigation of shared reading vs. reciprocal teaching. M.A. dissertation, Concordia University	Duration <12 weeks
Reggio-Emilia	Bowne, M.T. (2006). Comparisons of literacy and mathematical knowledge in kindergartens offering Reggio-Emilia-inspired project approach vs. didactic approach. Unpublished doctoral dissertation, University of South Dakota.	Insufficient sample
Repeated readings	Carver, R.P., & Hoffman, J.V. (1981). The effect of practice through repeated reading on gain in reading ability using a computer-based instructional system. <i>Reading Research Quarterly</i> , 16, 374-390.	Insufficient sample
Repeated readings	Herman, P.A. (1985). The effect of repeated readings on reading rate, speech pauses, and word recognition accuracy. <i>Reading Research Quarterly</i> , 20, 553-564.	Insufficient sample
Richards Read Systematic Language Program	Kusik, J., & Richards, C. (n.d.). Square one...again? Waco, TX: Creative Education Institute.	No control group
Richards Read Systematic Language Program	North Coast Education Services. (2002). <i>Mystery solved...a missing piece to Literacy: Richards Read Systematic Language implications for improved literacy in the United States</i> . Chagrin Falls, OH: Author.	No control group

Richards Read Systematic Language Program	Richads, C., & Truelson, N. (1996). Richards Read Systematic Language Program in the Bedford City Schools. Chagrin Falls, OH: North Coast Education Services.	No control group
Richards Read Systematic Language Program	Richads, C., & Truelson, N. (1996). Richards Read Systematic Language Program in the Bedford City Schools: 1995-96. Chagrin Falls, OH: North Coast Education Services.	No control group
Rigby Literacy	Harcourt Supplemental Publishers (September, 2003). A study of the instructional effectiveness of Rigby Literacy. Retrieved September 21, 2007 from www.rigby.com	Pretest equivalency not established
Road to the Code	Blachman, B.A., Ball, E., Black, R., & Tangel, D. (1994). Kindergarten teachers develop phoneme awareness in low-income, inner-city classrooms: Does it make a difference?. <i>Reading and Writing: An Interdisciplinary Journal</i> , 6, 1-17.	Duration < 12 weeks
Robust Vocabulary Instruction/ STORYTOWN	Educational Research Institute of America, (2006). An experimental efficacy study of ROBUST VOCABULARY INSTRUCTION in STORYTOWN ©2008	No adequate control group
Roots & Wings	Slavin, R.E., & Madden, N.A. (2000a). Roots & Wings: Effects of whole-school reform on student achievement. <i>Journal of Education for Students Placed At Risk</i> , (5)1-2, 109-136.	No adequate control group
Say That Again	Hartas, C., & Moseley, D. (1993). "Say that again, please": A scheme to boost reading skills using a computer with digitised speech. <i>Support for Learning</i> , 8(1), 16-21.	No control group.
Schema and metacognitive theories	Shortland-Jones, B. (1986). <i>The development and testing of an instructional strategy for improving reading comprehension based on schema and metacognitive theories</i> . Unpublished doctoral dissertation, University of Oregon.	Pretest equivalency not established
Segmentation	Uhry, J., & Shepard, M. (1993). Segmentation/Spelling Instruction as Part of a First-Grade Reading Program: Effects on Several Measures of Reading. <i>Reading Research Quarterly</i> , 28 (3), 219-233.	Insufficient sample
SFA & Active Learning	Hertz-Lazarowitz, R. (2004). Storybook Writing in the First Grade. <i>Reading and Writing: An Interdisciplinary Journal</i> , 17, 267-299.	Inadequate outcome measure
SFA & Comer	Clarke, P.A. (2001). <i>Analysis of the Success for All and School Development Programs and Their Effects on Reading Comprehension</i> . Unpublished masters thesis, Kean University.	Insufficient sample
Signatures (Harcourt)	Center for Innovation in Assessment. (1998). A study of the instructional effectiveness of the Signatures program. Orlando, FL: Harcourt School Publishers. (ERIC Document Reproduction Service No. ED431172)	No control group

Signatures (Harcourt)	Dakin, A.B. (1999)	No control group; Insufficient sample size
Sing, Spell, Read, and Write	Bryan, L. & Turner, J.S. (1996, November). <i>A comparison of the Sing, Spell, Read, and Write Program and the traditional approach to reading instruction</i> . Paper presented at the twenty-fifth annual meeting of the mid-south educational research association, Tuscaloosa, AL.	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Bryan, L.D. (1996). A comparison of the Sing, Spell, Read, and Write Program and the traditional approach to reading instruction. Dissertation Abstracts International, 57 (4), 1541A. (UMI No. 9628619).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Bleckley County Schools).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Christian Heritage Elementary School).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: D.D. Crawford Primary School).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Earle Elementary School).	No control group
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Ernest R. Graham Elementary School).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Fayette County Schools).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Fenton Avenue Elementary School).	Pretest equivalency not established

Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Freeport Elementary School).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Jonesboro School).	No untreated control group
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Kerens Elementary School).	No control group
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Lone Oak Elementary School).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Mahwah Elementary School).	Insufficient sample
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: PS 138 Queens).	No control group; Insufficient sample
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: San Francisco).	No control group
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Tice Elementary School).	No adequate control group, Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Traphagen Elementary School).	Insufficient sample
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compndium.pdf . (Study: Valley View Elementary School).	No control group

Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compendium.pdf . (Study: Washington Primary School, Berkeley).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compendium.pdf . (Study: West Clay County Elementary school).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW)	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compendium.pdf . (Study: Wynne Primary).	Pretest equivalency not established
Sing, Spell, Read, and Write (SSRW) vs Silver Burdett	Pearson Learning. (2002). Sing, Spell, Reading, & Write research compendium. Retrieved from http://www.pearsonlearning.com/content/File/SSRW/SSRW_Compendium.pdf . (Study: Eugene Fields Elementary School).	Pretest equivalency not established
Skills-based vs constructivist whole language instruction	Freppon, P.A. & McIntyre, E. (1999). A comparison of young children learning to read in different instructional settings. <i>The Journal of Educational Research</i> , 92(4), 206-21.	Insufficient sample
SMILE	Owenby, A. (2008). The impact of the SMILE reading program on reading achievement of first and second graders in Western North Carolina. Unpublished doctoral dissertation, Western Carolina University.	No control group
SOAR	Cury, J. (2001). Summer Opportunity to Accelerate Reading (SOAR) evaluation. Austin, TX: AISD	Duration < 12 wks
Sondays System	Catawba County Schools. (2002). Catawba County Schools Sonday System evaluation. Newton, NC: Author.	No control group
Sondays System	Winsor Learning, Inc. (n.d.). Sonday System data report & references. Retrieved from: http://www.sondaysystem.com/	Pretest equivalency not established
Sound Partners	Marchand-Martella, N., Martella, R., Nelson, J., Shelley, S., & Hatfield, D. (2002). Implementation of the Sound Partners Reading Program. <i>Journal of Behavioral Education</i> , 11(2), 117-130.	No control group
Sound Partners	Vadasy, P. & Sanders, E. (2004). Sound Partners: Research summary. Seattle, WA: Washington Research Institute.	No control group
Sound Reading	Howlett, B. (n.d.). Study using Sound Reading Elementary Activity Program. Ithaca, NY: Sound Reading Solutions.	No control group

Sound Reading	Kulas, D., & Andrews, M. (n.d.). Study using Sound Reading Elementary Activity Program Means-to-an-End Reader Sound Reading Elementary CD. Aurora, NY: Southern Cayuga School District.	No control group
SSRW	Green, C.D. (2001). A comparative study of literacy achievement of kindergarten children in contrasting programs of decoding instruction. Unpublished doctoral dissertation, Auburn University.	Pretests differences > 1/2 std dev
Steck-Vaughn Phonics Program	Greene, B.G. (2001). A summary report of the instructional effectiveness of the Steck-Vaughn Phonics Program: Level A: Units 3 and 4 & Level B: Units 2 and 3. Educational Research Institute of America.	No control group
Stepping Stones	Nelson, J. R., Benner, G. H., & Gonzalez, J. E. (2005). An investigation of the effects of a pre-reading intervention on the early literacy skills of children at risk of emotional disturbance and reading problems. <i>Journal of Emotional and Behavioral Disorders</i> , 13, 3-12.	Duration < 12 weeks
Stepping Stones	Nelson, J. R., Stage, S. A., Epstein, M. H., & Pierce, C. D. (2005). Effects of a pre-reading intervention on the literacy and social skills of children. <i>Exceptional Children</i> , 72 (1), 29-46.	Duration < 12 weeks
Storybook Reading Program	Morrow, L. et al (1990). Effects of a story reading program on the literacy development of at-risk kindergarten children. <i>Journal of Reading Behavior</i> , 22 (3), 255-75.	Pretests differences > 1/2 std dev
Success for All	Berends, M., Kirby, S., Naftel, S., & McKelvey, C. (2000). Implementation and performance in New American Schools: Three years into scale-up. Santa Monica, CA: RAND Education. (ERIC No. ED451204).	No adequate control group
Success for All	Borman, Geoffrey D., Robert E. Slavin, Alan Cheung, Anne Chamberlain, Nancy Madden and Bette Chambers. "Final Reading Outcomes of the National Randomized Field Trial of Success for All." Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA, 2006.	Subsumed in included AERJ article
Success for All	Borman, Geoffrey D., Robert E. Slavin, Alan Cheung, Anne Chamberlain, Nancy Madden and Bette Chambers. "Success for All: First-Year Results from the National Randomized Field Trial." <i>Educational Evaluation and Policy Analysis</i> . Vol. 27, No. 1, 2005, pp. 1-22.	Subsumed in included AERJ article
Success for All	Chambers, B., Abrami, P., & Morrison, S. (2001). Can Success for All succeed in Canada? In R. Slavin & N. Madden (Eds.). <i>Success for All: Research and reform in elementary education</i> (pp. 93-109). Mahway, NJ: Erlbaum.	Pretest equivalency not established

Success for All	Chambers, B., Cheung, A., Madden, N., Slavin, R.E., & Gifford, R. (2006). Achievement effects of embedded multimedia in a Success for All reading program. <i>Journal of Educational Psychology</i> , 98(1), 232-237.	No control group
Success for All	Datnow, A., Borman, G., Stringfield, S., Rachuba, L., & Castellano, M. (2003). Comprehensive school reform in culturally and linguistically diverse contexts: Implementation and outcomes from a four-year study. <i>Educational Evaluation and Policy Analysis</i> , 25(2), 25-54	Pretest equivalency not established
Success for All	Dicembre, E. (2002). How they turned the ship around. <i>Journal of Staff Development</i> , 23(2), 32-35.	No control group
Success for All	Grehan, A. (2001). The effects of the Success for All program on improving reading readiness skills for at-risk students in kindergarten. <i>Dissertation Abstracts International</i> , 62 (10), 3292A (UMI No. 3029892).	No adequate control group;- Pretest differences > 1/2 SD
Success for All	Kapushion, B. (2003). A qualitative study of "Success for All-Roots & Wings" on four Jefferson County schools. Unpublished doctoral dissertation,	No control group
Success for All	Karweit, N. (1989). The effects of The Effects of a Story Reading Program on the Vocabulary and Story Comprehension Skills of Disadvantaged Prekindergarten and Kindergarten Students. Report No. 39. Baltimore, MD: Johns Hopkins University.	Subsumed in later report
Success for All / Co-Nect	Lewis, J.L., & Bartz, M. (1999). <i>New American Schools designs: An analysis of program results in district schools</i> . Cincinnati, OH: Cincinnati Public Schools.	No control group
Success for All	Lucius, L. (2000). A comparison of three kindergarten curricula on language and literacy performance. <i>Dissertation Abstracts International</i> , 62 (1), 65A (UMI No. 3003007).	No adequate control group;- Pretest differences > 1/2 SD
Success for All	Nunnery, J. (1995). An assessment of Success for All program component configuration effects on the reading achievement of at-risk first grade students. Unpublished doctoral dissertation. The University of Memphis, Memphis, TN.	Subsumed in later report
Success for All	Pogrow, S. (2002). Success for All is a failure. <i>Phi Delta Kappan</i> , 83(6), 463-468.	No control group

Success for All	Ross, S., Alberg, M., McNelis, M., & Smith, L. (with Rakow, J., Lewis, T., & Loomis, S.) (1997). Evaluation of elementary school-wide programs: Clover Park School District, Year 2: 1997-98. Final Report to Clover Park School District [Tacoma, WA]. Memphis, TN: University of Memphis, Center for Research in Educational Policy.	Subsumed in later report
Success for All	Ross, S.M., & Casey, J. (1998a). Longitudinal study of student literacy achievement in different Title I school-wide programs in Ft. Wayne community schools, year 2: First grade results. Memphis, TN: University of Memphis, Center for Research on Educational Policy.	Subsumed in later report
Success for All	Ross, S., & Smith, L. (1994). Effects of the Success for All model on kindergarten through second grade reading achievement, teachers' adjustment, and classroom-school climate at an inner-city school. <i>The Elementary School Journal</i> , 95 (2), 121-138.	Pretest equivalency not established
Success for All	Ross, S., Smith, L., & Nunnery, J. (1998, April). The relationship of program implementation quality and student achievement. Paper presented at the meeting of the American Educational Research Association, San Diego, CA.	Subsumed in later report
Success for All	Ross, S., Sterbinsky, A., & McDonald, A. (2003, April). School variables as determinants of the success of comprehensive school reform: A quantitative and qualitative study of 69 inner-city schools. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.	Pretest equivalency not established
Success for All	Ross, S.M., Smith, L.J., Lewis, T., & Nunnery, J. (1996). <i>1995-96 evaluation of Roots & Wings in Memphis City Schools</i> . Memphis: University of Memphis, A.11 Center for Research in Educational Policy.	Pretest equivalence not established
Success for All	Sanders, W., Wright, S., Ross, S., & Wang, L. (2000). Value added achievement results for three cohorts of Roots & Wings schools in Memphis: 1995-1999 outcomes. Retrieved from Success for All Foundation web site: http://successforall.org/_images/pdfs/Ross_Roots_Wings_99.pdf .	No adequate control group
Success for All	Seligo, B.D. (2003). How schema appropriate alternate assessments affect the oral reading accuracy and oral reading fluency of selected first grade students using the schoolwide reform model Success for All. <i>Masters Abstracts International</i> , 42 (2), 383. (UMI No. 1416013).	No control group

Success for All	Slavin, R.E., & Yampolsky, R. (1991). Success For All: Effects on language minority students (Report 14). Baltimore, MD: Johns Hopkins University, Center for Research on the Education of Disadvantaged Students. (ERIC No. ED 331294)	Pretest equivalency not established
Success for All	Slavin, R.E., Leighton, M., & Yampolsky, R. (1990). Success for All: Effects on the achievement of limited English proficient children (Report No. 5). Baltimore, MD: The Johns Hopkins University Center for Research on Effective Schooling for Disadvantaged Students (ERIC No. ED331585).	Pretest equivalency not established
Success for All	Slavin, R.E., & Madden, N. (1994, April). Lee Conmigo: Effects of Success for All in bilingual first grades. Paper presented at the meeting of the American Educational Research Association, New Orleans, LA.	Subsumed in later report
Success for All	Slavin, R.E., & Madden, N. (1999). Effects of bilingual and English as a second language adaptations of success for All on the reading achievement of students acquiring English. <i>Journal of Education for Students Placed at Risk</i> , 4 (4), 393-416. (Study: Philadelphia, PA).	Subsumed in later report
Success for All	Slavin, R.E., Madden, N.A., Dolan, L.J., & Wasik, B.A. (1990). Success for All: Second year report. Baltimore, MD: Johns Hopkins University, Baltimore Public Education Institute.	Subsumed in later report
Success for All	Smith, L., Ross, S., & Casey, J. (1996). Multi-site comparison of the effects of Success for All on reading achievement. <i>Journal of Literacy Research</i> , 28 (3), 329-353 (Study: Montgomery, AL).	Pretest equivalency not established
Success for All	St. John, E., Manset, G., Chung, C., & Worthington, K. (2001). Assessing the rationales of educational reforms: A test of the professional development, comprehensive reform, and direct instruction hypothesis. Bloomington: Indiana University, Indiana Education Policy Center, Smith Center for Research in Education (ERIC No. ED458641).	Pretest equivalency not established
Success for All, Building Essential Literacy, Developing Literacy, and Literacy Collaborative	Tivnan, T., & Hemphill, L. (2005). Comparing four literacy reform models in high-poverty schools: Patterns of first grade achievement. <i>The Elementary School Journal</i> , 105(5), 419-441.	No control group
Success for All	Urdegar, S.M. (2000). <i>Evaluation of the Success For All Program 1998-99</i> . Miami, FL: Miami-Dade Public Schools, Office of Evaluation Research.	Pretest equivalency not established

Success for All	Wang, L.W., & Ross, S. (2003). Comparisons between elementary school programs on reading performance: Albuquerque Public Schools. Memphis, TN: University of Memphis, Center for Research in Educational Policy	Pretest equivalency not established
Success for All	Wang, W., & Ross, S.M. (1999c). <i>Evaluation of Success for All Program, Little Rock School District, Year 2: 1998-99</i> . Memphis, TN: University of Memphis, Center for Research on Educational Policy.	Pretest equivalency not established
Success for All	Wells, L. (2000). An investigation of the Success for All reading program at two Mississippi elementary schools. Dissertation Abstracts International, 61 (4), 1342A. (UMI No. 9970370).	No control group
SuccessMaker	Humphries, J. (1997). Technology literacy challenge grant application, Pamlico County Schools.	No control group
Successmaker	Perez, K.J. (1998). Predictors of achievement in math and reading by elementary ESOL and non-ESOL students using a computer-based integrated learning system. Unpublished doctoral dissertation, Barry University School of Education.	No control group
SuccessMaker Reading	Iserhagen, J. (1999). Technology: A major catalyst for increasing learning. <i>T.H.E. Journal</i> , 27(1), 30, 32, 34, 36, 38.	No control group
SuccessMaker Reading	NCS Learn. (2000). North Carolina end-of-grade/SuccessMaker relationship study for Cumberland County Schools spring 2000. Mesa, AZ: Author.	No control group
SuccessMaker Reading	Suppes, P., Zanotti, M., Smith, N. & Tingey, B. (1987). Effectiveness of the CAI program for Chapter 1 students in Ft. Worth parochial schools: Global evaluation. Palo Alto:CA, Computer Curriculum Corporation.	No control group
SuccessMaker Reading	Suppes, P., Zanotti, M., & Smith, N. (1988). Effectiveness of the CAI program for Chapter 1 students in Ft Worth parochial schools: Global evaluation for 1986-87. Palo Alto, CA: Computer Curriculum Corporation.	No control group
SuccessMaker Reading	Suppes, P., Zanotti, M., & Smith, N. (1988). Effectiveness of the CAI program for Chapter 1 students in Ft Worth parochial schools: Global evaluation for 1987-88. Palo Alto, CA: Computer Curriculum Corporation.	No control group
SuccessMaker Reading	Suppes, P., Zanotti, M., & Smith, N. (1989). Effectiveness of the CAI program for Chapter 1 students in Ft Worth parochial schools: Global evaluation for 1988-89. Palo Alto, CA: Computer Curriculum Corporation.	No control group

SuccessMaker Reading	Suppes, P., Zanotti, M., & Smith, N. (1991). Effectiveness of the CCC CAI program for Chapter 1 students in Ft Worth parochial schools: Global evaluation for 1990-91. Palo Alto, CA: Computer Curriculum Corporation.	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study: MAP/SuccessMaker relationship study for North Kansas City Public Schools.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study: Meadowlane Elementary School Miami-Dade County Schools Hialeah, FL: Case study and program summary 2001-2002.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study: Minneapolis Public Schools: Efficacy analysis for 2001-2002 MCA and SuccessMaker.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study: Minneapolis Public Schools: On target analysis for 2001-2002 MCA and SuccessMaker.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study: Orange County Public Schools, Orlando, FL: End of year report SuccessMaker ontarget analysis efficacy)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study: Orange County Public Schools: OnTarget analysis for 2002-2003 FCAT and SuccessMaker)	No control group

SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study: Technology literacy challenge fund sub grant program.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study: Wake County Schools: NC OG tests and SuccessMaker relationship study for 1999-2000)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study:Aiken County Schools: On target analysis for 2001-2002 PACT and SuccessMaker.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study:Seminole County Schools, Orlando, FL: End of year report SuccessMaker OnTarget analysis efficacy.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study:Seminole County Schools: On target analysis for 2001-2002 FCAT and SuccessMaker.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study:Seminole County Schools: On target analysis for 2002-2003 FCAT and SuccessMaker.)	No control group
SuccessMaker Reading	Thrall, A. & Tingey, B. (Eds.). (2003, February). SuccessMaker Primary reading: SuccessMaker submission for WWC. (Available from Pearson Education Technologies, 6710 East Camelback Rd. Scottsdale, AZ 85251) (Study:SuccessMaker ontarget analysis highlights from study of ITBS and SuccessMaker in North Kansas City School District.	No control group

Sullivan Reading program	School District of Beloit. (1998). Tribes evaluation-phase two (precursor study). <i>Research Focus</i> , 3 (9), 1-6.	Pretest equivalency not established
Sunform Alphabet... phonemic training	Finaldi-Schmidt, G. (2002). <i>An examination of the impact of two models for delivering intensive instruction on the literacy skills of kindergarten students</i> . Unpublished doctoral dissertation , Loyala Univeristy.	Pretest equivalency not established
Superkids	Harrison, L.W., Grehan, A.W., Nunnery, J., & Huang, Y. (2006). The effects of the Superkids program on beginning reading achievement in kindergarten. Memphis, TN: Center for Research in Educational Policy.	Pretest, demographic differences > 1/2 SD apart
Superkids	Institute for the Advancement of Research in Education. (2004). <i>Superkids research report</i> . Unpublished manuscript.	Pretest equivalence not established
SWELL	Center, Y., & Freeman, L. (1997). A trial evaluation of SWELL (Schoolwide Early Language and Literacy): A whole class early literacy program for at-risk and disadvantaged children. <i>International Journal of Disability, Development and Education</i> , 44(1), 21-39.	Pretest equivalency not established
Synthetic Phonics	Johnston, R.S, and Watson, J. (2005) The effects of synthetic phonics teaching on reading and spelling attainment, a seven year longitudinal study. Published by the Scottish Executive Education Department. Available on http://www.scotland.gov.uk/Publications/2005/02/20688/52449 . (A report on the 7 year longitudinal study of synthetic phonics teaching in Clackmannanshire, Scotland).	No untreated control group
TEACH	Hagin, R.A., Silver, A.A., & Beecher, R. (1978). TEACH: Learning tasks for the prevention of learning disabilities. <i>Journal of Learning Disabilities</i> , 11, 54-57	Pretest equivalency not established
Teach Baltimore	Borman and Dowling (2006) Longitudinal Achievement Effects of Multiyear Summer School...Teach Baltimore Randomized Field Trial Educational Evaluation and Policy Analysis, Vol. 28, No. 1, 25-48	No adequate control group
Teaching	Anderson, L.M., Everson, C.M., & Brophy, J.E. (1979). An Experimental Study of Effective Teaching in First-Grade Reading Groups. <i>The Elementary School Journal</i> , 79(4), 193-223.	Insufficient sample
TELE-Web	Englert, C.S., Zhao, Y., Collings, N. & Romig, N. (2005). Learning to Read Words: The Effects of Internet-Based Software on the Improvement of Reading Performance. <i>Remedial and Special Education</i> , 26(6), 357-371.	Pretest equivalency not established

The Short-A Sound	Adamson, R.D. (1997). <i>A study to determine the efficacy of a computer program designed to help students increase their ability to decode three-letter, short-A, consonant-vowel-consonant (c-v-c) words</i> . Unpublished doctoral dissertation, The University of New Mexico.	No control group
Time Management	Foorman, B.R., Schatschneider, C., Eakin, M.N., Fletcher, J.M., Moats, L.C., & Francis, D.J. (2006). The impact of instructional practices in grades 1 and 2 on reading and spelling achievement in high poverty schools. <i>Contemporary Educational Psychology</i> , 31, 1-29.	No control group
Tutoring (Parent Tutoring Packages)	Nail, Melissa Holder (2001) Building better readers: An investigation of Parent Tutoring Packages to increase academic reading achievement and improve parent tutoring behavior. Ph.D. dissertation, Mississippi State University, United States -- Mississippi. Retrieved October 23, 2007, from ProQuest Digital Dissertations database. (Publication No. AAT 3005595).	No control group
Voyager	Hecht, S. & Torgesen, J. (2002). Within school treatment and control study: Voyager Universal Literacy System: Orange County, Florida 2001-2002.	Duration < 12 weeks
Voyager Universal Literacy	Roberts, G. (2002, June). Evaluation report on the impact of the Voyager Universal Literacy System in Birmingham City Schools. Retrieved April 19, 2007 from http://www.voyager-learning.com/docs/differene/report_studies/Birmingham.pdf .	No control group
Voyager Universal Literacy	Roberts, G. (2003). Longitudinal study of the effect of universal literacy: A hierarchical linear modeling analysis of curriculum-based measurement data. Austin, TX: Evaluation Research Services.	No control group
Voyager Universal Literacy	Roberts, G., & Allen, A. (2003). Impact of the Voyager Universal Literacy System as measured by PALS in Virginia. Retrieved from Voyager Expanded Learning web site: http://www.voyagerlearning.com/ResearchStudyDocuments/ULS_measuredby_PALS_Richmond_VA.pdf	Pretest equivalency not established
Voyager Universal Literacy	Zvoch, K. (2007). A Multilevel Multisite Outcomes-by-Implementation Evaluation of the Voyager Universal Literacy System. <i>American Journal of Evaluation</i> (paper accepted for presentation at the Annual Meeting of the American Educational Research Association, Chicago, IL).	No control group

Waterford	Nauss, Deborah A. (2002) The effects of a supplemental computerized reading program on the comprehension of first-grade readers in rural south Florida. Ed.D. dissertation, University of Central Florida, United States -- Florida. Retrieved September 4, 2007, from ProQuest Digital Dissertations database. (Publication No. AAT 3054602).	Pretest equivalency not established
Waterford	Powers, S., & Price Johnson, C. (2006). Evaluation of the Waterford Early Reading Program in kindergarten. Tuscon, AZ: Creative Research Assoc.	Pretest equivalency not established
Waterford Early Reading Program	Alfaro, R. (1999). The technology-reading connection. <i>Educational Workshop</i> , 56(6), 48-51.	No control group
Waterford Early Reading Program	Canedo, M., Smolen, L., & Pollard, J. (2000). A study of the effectiveness of the Waterford Early Reading Program: Final evaluation results 1997-98. Buffalo, NY: Buffalo Public Schools.	Inadequate outcome measure
Waterford Early Reading Program	Cassady, J., & Smith, L. (2003). The impact of a reading-focused integrated learning system on phonological awareness in kindergarten. <i>Journal of Literacy Research</i> , 35(4), 947-964.	No adequate control group; Pretests and demographic differences > 1/2 SD apart
Waterford Early Reading Program	Corbett, R. (2000). An evaluation of the Waterford Early Reading Program in the Hillcrest Title I school in the Alpine School District. (Available from the Waterford Institute, Inc., 55 West 900 South, Salt Lake City, UT 84101)	No adequate control group - Pretest equivalency not established
Waterford Early Reading Program	Hecht, S. A. (2000). Waterford Early Reading program in Ohio: An evaluation. (Available from the Waterford Institute, Inc., 55 West 900 South, Salt Lake City, UT 84101)	Pretest equivalency not established
Waterford Early Reading Program	Obeso-Bradley, C. & Miller, B. (1999, December). Early literacy and technology: The Waterford Early Reading Program (WERP) Level 2, Southside School District, Hollister, California. Paper presented at the annual education conference of the California School Boards Association, San Francisco, CA.	No control group
Waterford Early Reading Program	Reynolds, C. (2001). An evaluation of the Waterford Early Reading Program. (Available from the Waterford Institute, Inc., 55 West 900 South, Salt Lake City, UT 84101) (Study: Decatur School District 61)	Pretest equivalency not established
Waterford Early Reading Program	Roe, E. (2000). An evaluation of the Waterford Early Reading Program in Scott Lane Elementary School Santa Clara Unified School District, Santa Clara, Calif., 1998-99 school year. (Available from the Waterford Institute, Inc., 55 West 900 South, Salt Lake City, UT 84101)	No control group

Waterford Early Reading Program	Waterford Institute (2002). Correlation. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101).	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (1998). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Collins Garden and Nelson Elementary Schools, San Antonio, TX)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (1998). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Daily use of computer materials in Utah and New York)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (1998). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Hillcrest Elementary School preliminary study)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (2000). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Hillcrest Title I school in Alpine School District, Orem, Utah)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (2000). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Norwalk Public Schools 1998-99 school year, Norwalk, CT)	Inadequate outcome measure+C569
Waterford Early Reading Program	Waterford Institute, Inc. (2000). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Scott Lane Elementary School, Santa Clara USD)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (2002). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Commons Lane Elementary School 2000-01)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (2002). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Correlation between test gains and time spent using the Waterford Early Reading Program)	No control group

Waterford Early Reading Program	Waterford Institute, Inc. (2002). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Decatur SD 61)	Pretest equivalency not established
Waterford Early Reading Program	Waterford Institute, Inc. (2002). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: El Centrito interim grant report for the period of July1 999 to December 31 1999, report no 109)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (2002). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Hempstead ISD. Hempstead, TX)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (2002). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: LAUSD, Academic alliance and support, Los Angeles, CA)	Insufficient information
Waterford Early Reading Program	Waterford Institute, Inc. (2002). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: LAUSD, Los Angeles, CA)	No control group
Waterford Early Reading Program	Waterford Institute, Inc. (2002). Research Compendium: The Waterford Early Reading Program. (Available from Waterford Institute, Inc., 55 W 900 S., Salt Lake City, UT 84101). (Study: Madisonville Consolidated ISD)	Pretest equivalency not established
Waterford Early Reading Program, Level I	Hecht, S. & Close L. (2002). Emergent Literacy Skills and Training Time Uniquely Predict Variability in Responses to Phonemic Awareness Training in Disadvantaged Kindergartners. <i>Journal of Experimental Child Psychology</i> , 82,93-115.	No adequate outcome measure
Whole Language program	Dahl, K. & Scharer, P. (2000). Phonics teaching and learning in whole language classrooms: New evidence from research. <i>The Reading Teacher</i> , 53(7), 584-594.	No control group
WiggleWorks	Boling, C., Martin, S., & Martin, M. (2002). The effects of computer-assisted instruction on first grade students' vocabulary development. <i>Reading Improvement</i> , 39(2), 79-88.	Duration < 12 weeks
Wilson Reading System	Wilson Language Training Corporation. (2002). Wilson LiteracySolutions: Evidence of effectiveness Wilson Spelling results 2000. Retrieved from Retrieved from http://www.wilsonlanguage.comPDF/Lynn_Results.pdf	No control group

Writers Workshop	Klatt, E., et al. (1996). Improving student reading and writing skills through use of Writer's Workshop. Unpublished masters thesis, St. Xavier University.	No control group
Writing to Read	Adkins, D. (1989). <i>"Writing to Read" evaluation report: West Virginia project for school year 1988/89</i> . Hamlin, WV: Lincoln County School District. (ERIC No. ED325844)	Pretest equivalency not established; inadequate outcome measure
Writing to Read	Blackburn, S., & Davis, M. (1987). Writing to Read evaluation. Volusia County, FL: School District of Volusia County.	Pretest equivalency not established
Writing to Read	Brierley, M. (1987). Writing to Read and full day kindergarten evaluation. Columbus, OH: Public Schools Department of Evaluation Services (ERIC No. ED289626).	Duration <12 wks
Writing to Read	Case, E. & Christopher, M. (1989). Pilot study of the learning to read system. Albuquerque, NM: Albuquerque Public Schools. (ERIC No. ED 32033).	Duration <12 wks
Writing to Read	Casey, J. (1992). Writing to Read in the classroom: A literature-based writing literacy environment. Simi Star Project Report (ERIC No. ED367952).	No control group
Writing to Read	Childers, R. (1989). Implementation of the Writing to Read instructional system in 13 rural elementary schools in southern West Virginia. 1988-89 Annual Report. Charleston, WV: Appalachia Educational Lab (ERIC No ED320744)	Pretest equivalency not established
Writing to Read	Childers, R. (1990). Implementation of the Writing to Read instructional system in 13 rural elementary schools in southern West Virginia. A two-year evaluation. Final Report. Charleston, WV: Appalachia Educational Lab (ERIC No ED334032)	Inadequate outcome measure
Writing to Read	Childers, R., & Leopold, G. (1993). A follow-up study of the SRC/IBM Writing to Read project in Kentucky, Virginia, and West Virginia: Final report. Washington, DC: Appalachian Regional Commission (ERIC No. ED363474).	No control group
Writing to Read	Christopher, M.W. (1991). <i>The writing approach to literacy: A comparison of writing influences on reading in six elementary schools</i> . Unpublished doctoral dissertation, The University of New Mexico.	Duration <12 weeks
Writing to Read	Decker, B. (1991, May). Early instruction with computers and whole language: An evaluation of the Writing to Read computer program with disadvantaged minority children. Paper presented at the meeting of the 36th International Reading Association, Las Vegas, NV.	Pretest equivalency not established

Writing to Read	District of Columbia Public Schools, Division of Quality Assurance. (1986). Writing to Read Program, Final evaluation report. ECIA Chapter 2, 1985-86. Washington, DC: Author. (ERIC No. ED279018).	Pretest equivalency not established
Writing to Read	Driscoll, L.A. (1997). The Writing to Read program in the Memphis City Schools, Spring 1997. ERIC document ED 413 584.	No adequate control group
Writing to Read	Educational Testing Service. (1984). The ETS evaluation of Writing to Read. Retrieved from Bright Blue Software web site: http://brightbluesoftware.com/downloads/The%20ETS%20Evaluation%20of%20WTR.pdf .	No control group
Writing to Read	Fairfax County Public Schools. (1986). <i>Report of the 1985-86 evaluation of the Writing to Read program</i> . Fairfax County, VA: Author.	Pretest equivalency not established
Writing to Read	Kurban M. (2000). The longer term effectiveness of the Writing to Read program. Dissertation Abstracts International, 61 (2), 548A. (UMI No. 9962340).	Pretest equivalency not established
Writing to Read	Leahy, P. (1991). A multi year formative evaluation of IBM's Writing to Read program. <i>Reading Improvement</i> , 28(4), 257-264.	Pretest equivalency not established
Writing to Read	Levinson, J., & Lalor, I. (1989). Computer assisted writing/reading instruction of young children: a 2-year evaluation of Writing to Read. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.	Pretest equivalency not established
Writing to Read	McBeath, M. (1986). <i>Writing to Read: Final evaluation report, 1985-86</i> . Washington, D.C.: DC Public Schools.	Pretest equivalency not established
Writing to Read	Metropolitan Public Schools. (1987). Writing to Read Program: Tusculum Elementary School, 1985-86, 1986-87: Evaluation report. Nashville, TN: Author.	Pretest equivalency not established
Writing to Read	Midobuche, R.M. (1996). The effects of the Writing to Read computer-assisted language program on the English language skills of language minority students. Unpublished doctoral dissertation, Texas A&M University - Kingsville	Insufficient sample
Writing to Read	Murphy, R., & Appel, L. (1984). Evaluation of the Writing to Read instructional system, 1982-1984 (Second year report). Princeton, NJ: Educational Testing Service.	No adequate outcome measure
Writing to Read	New York City Board of Education: Office of Research, Evaluation, and Assessment. (1990). Evaluation Section Report: Writing to Read, 1988-1989.	Assessment measures not standardized

Writing to Read	Rogier, L., Owens, J. & Patty, D. (1999). Writing to Read: A Valuable Program for First Grade? <i>Reading Improvement</i> , 36 (1), 24-34.	Pretest equivalency not established
Writing to Read	Sarangarm, I. (1992). The relationship p between writing and reading achievement: The effectiveness of the Writing to Read Program. Dissertation Abstracts International, 53 (4), 1042A (UMI No. 9224080).	Pretest equivalency not established
Writing to Read	Shaver, J., & Wise, B. (1990). Literacy: The impact of technology on early reading. Paper presented at the Annual Meeting of the American Reading Forum in Sarasota, FL, December, 1990 (ERIC No ED327832).	No control group
Writing to Read	Singh, B. (1991). IBM's Writing to Read program: The right stuff or just high tech fluff? Atlanta, GA: Fulton County Board of Education (ERIC No ED339015).	Pretest equivalency not documented
Writing to Read	Sledge, P.S. (1987). Differences in language achievement of kindergartners with and without experiences on the IBM Computer Program Writing to Read. Dissertation Abstracts International, 48 (9), 1973A. (UMI No. 8724407).	Pretest equivalency not established
Writing to Read	Staff, P. (1987). Final evaluation of the Writing to Read program 1986-1987 (Report No. REA87-002-05). Dallas, TX: Department of Research, Evaluation, and Audit, Dallas ISD.	No adequate control group; not matched on demographics
Writing to Read	Stone, T. (1996). The academic impact of classroom computer usage upon middle-class primary grade level elementary school children. Unpublished doctoral dissertation, Widener University.	Pretest equivalency not established
Writing to Read	The University of Mississippi (n.d.). The Mississippi evaluation of Writing to Read executive summary. University: Author.	Pretest equivalency not established
Writing to Read	Vetcher, J. (1990). The utilization of Writing to Read and its effect on the reading and writing skills of kindergarten and first grade students. Dissertation Abstracts International, 51 (8), 2693A. (UMI No. 9102002).	Pretest equivalency not established
Writing to Read	West, V. (1985). Teaching reading and writing in Tulsa's kindergarten program. <i>Spectrum</i> , 3(3), 31-35.	No control group
Writing to Read	Zenke, L.L. & Keatley, M.J. (1985). Progress toward excellence: Tulsa's kindergarten program. <i>ERS Spectrum</i> , 3(4), p. 3-8.	Insufficient information
Writing to Read/ Stories and More/ Children's Writing and Publishing	Casey, J. (2001). A path to literacy: empowering students in your classroom. ERIC No. ED458540.	No adequate outcome measure

Writing to Write	Chambless, J., & Chambless, M. (1994). The Impact of Instructional Technology on Reading/Writing Skills of 2nd Grade Students. <i>Reading Improvement</i> , 31, 151-155.	Pretest equivalency not established
Zoo Phonics	Nuno, Jorge A. (2005) Is computer-assisted instruction an effective tool in the reading-writing classroom? Unpublished M.A. dissertation, California State University, Dominguez Hills.	No control group

Table 1: Beginning Reading Curricula										
Study	Design Large/Small	Duration	N	Grade	Sample Characteristics	Posttest	Effect Sizes by Subgroup/Measure	Decoding	Comprehension	Overall Effect Size
Core Basal Programs										
Open Court Reading										
Borman, Dowling, & Schneck (2008)	Randomized Quasi-Experiment (L)	1 year	16 classes (9E, 7C) 307 students (165C, 139C)	1	Schools in Idaho, Texas, Florida, and Indiana. 61% FL, 57% minority	Terra Nova		--	+0.06	+0.17
						Reading Comprehension	+0.06			
						Reading Vocabulary	+0.22			
						Reading Composite	+0.17			
Reading Street										
Wilkerson, Shannon, & Herman (2007)	Randomized Quasi-Experiment (L)	1 year	18 teachers 387 students (220E, 167C)	1	Schools in 4 sites around the US. 26% FL, 86%W, 8%H, 3%AA	Gates MacGinitie		--	+0.15	+0.15
Wilkerson, Shannon, & Herman (2006)	Randomized Quasi-Experiment (L)	1 year	16 teachers (8E, 8C)	1	5 schools in 2 urban, 1 rural site. 54% FL, 57% W, 25% AA, 11% H	Gates MacGinitie		--	-0.02	-0.02
Scholastic Phonics Readers and Literacy Place										
Schultz (1996)	Randomized Quasi-Experiment (L)	1 year	4 districts 8 classes 301 students (162E, 139C)	1	Large urban school districts in CA	CTBS		+0.23	+0.14	+0.16
						Reading	+0.07			
						Vocabulary	+0.11			
						Comprehension	+0.21			
						Word Analysis	+0.23			
Supplemental Curricula										
Open Court Phonics Kit										
Barrett (1995)	Matched (S)	1 year	9 classes (5E, 4C) 161 students (78E, 83C)	1	Middle class district in Riverside, CA	TERA-2	+0.36	+0.54	+0.47	+0.49
						SAT Total	+0.62			
Phonics in Context										
Barrett (1995)	Matched (S)	1 year	11 classes (7E, 4C) 170 students (87E, 83C)	1	Middle class district in Riverside, CA	TERA-2	+0.21	+0.43	+0.40	+0.34
						SAT Total	+0.47			
Elements of Reading: Phonics and Phonemic Awareness										
Apthorp (2005)	Randomized Quasi-Experiment (L)	1 year	6 schools 16 teachers (8E, 8C) 257 students (126E, 131C)	1	4 high-poverty, 2 middle class schools. Overall, 57% FL, 56%AA, 41%W, 5%H	ERDA	-0.09	-0.09	-0.29	-0.19
						Gates MacGinitie	-0.29			
Note: L=large study with at least 250 students; S=small study with less than 250 students; E=Experimental; C=Control; CTBS=Comprehensive Test of Basic Skills; SAT=Scholastic Achievement Test; TERA=Test of Early Reading Ability; ERDA=Early Reading Diagnostic Assessment, FL=Free/reduced-price lunch; W=White; AA=African American; H=Hispanic.										

Table 2: Instructional Technology in Beginning Reading										
Study	Design Large/Small	Duration	N	Grade	Sample Characteristics	Posttest	Effect Sizes by Subgroup/Measure	Decoding	Comprehension	Overall Effect Size
Computer-Assisted Instruction										
Destination Reading										
Campuzano et al. (2009)	Randomized (L)	1 year	21 teachers (21E, 14C) 742 students (448 E, 294C)	1	Schools across the U.S. 71% FL, 31% AA, 34%H, 34% W.	SAT-10		--	+0.11	+0.11
Headsprout										
Campuzano et al. (2009)	Randomized (L)	1 year	63 teachers (32E, 31C) 1,079 students (574E, 505C)	1	Schools across the U.S. 35% FL, 81% W, 13% AA, 67% H	SAT-10		--	+0.01	+0.01
Plato Focus										
Campuzano et al. (2009)	Randomized (L)	1 year	29 teachers (15E, 14C) 618 students (327E, 291C)	1	Schools across the U.S. 48% FL, 67%W, 27% H, 5% AA	SAT-10		--	+0.03	+0.03
Waterford Early Reading Program										
Campuzano et al. (2009)	Randomized (L)	1 year	46 teachers (28E, 18C) 1,155 students (689E, 466C)	1	Schools across the U.S. 47%FL, 37%AA, 16%H	SAT-10		--	+0.02	+0.02
Cassady & Smith (2005)	Matched (S)	1 year	6 classes (3E, 3C) 93 students (46E, 47C)	1	School in rural midwest	Terra Nova Reading		--	+0.71	+0.71
Phonics Based Reading										
Macaruso, Hook, & McCabe (2006)	Matched (S)	7 mo.	5 schools 10 classes (5 E, 5C) 179 students (92 E, 87 C)	1	Boston area 50% FL	Gates MacGinitie		--	+0.20	+0.20
The Literacy Center (LeapFrog)										
RMC (2004)	Randomized Quasi- Experiment (S)	1 year	6 schools 195 students (109E, 86C)	1	High-poverty schools in Las Vegas, 30% ELL	Gates MacGinitie	-0.04	-0.01	-0.04	-0.02
						DIBELS	-0.01			
WICAT										
Erdner, Guy, & Bush (1997)	Matched (S)	1 year	2 schools 85 students	1	Schools in north central OK	CTBS		--	+1.05	+1.05
Reading Machine										
Abram (1984)	Randomized (S)	12 weeks	103 students	1	Not stated	ITBS		--	+0.19	+0.19

Mixed-Method Models										
Writing to Read										
Collis, Ollila & Olilla (1990)	Matched (S)	1 year	97 students (53E, 44C)	1	Schools in British Columbia, Canada	SAT		--	+0.47	+0.27
						Total Reading	+0.47			
						Word Study	+0.07			
Beasley (1989)	Matched (S)	6 months	74 students (42E, 32C)	1	Middle-class students in Athens, AL; 82%W, 18%AA	SESAT-2		-0.13	-0.52	-0.27
						Sounds & Letters	-0.09			
						Word Reading	+0.15			
						Sentence Reading	-0.44			
						Reading	-0.52			
						Comprehension	-0.52			
						Total Reading	-0.44			
Embedded Multimedia										
Reading Reels										
B. Chambers et al. (2006)	Randomized (L)	1 year	10 schools 394 students	1	High-poverty schools in Hartford, CT 61% H, 35% AA	Woodcock		+0.20	+0.08	+0.17
						Word ID	+0.15			
						Word Attack	+0.32			
						Passage Comp.	+0.08			
						DIBELS	+0.12			
B. Chambers et al. (2008)	Randomized (S)	1 year	2 schools 159 students (75E, 84C)	1	Hispanic students in high-poverty schools in Los Angeles and Las Vegas	Woodcock		+0.30	+0.17	+0.27
						Letter-Word	+0.33			
						Word Attack	+0.28			
						GORT				
						Fluency	+0.28			
						Comprehension	+0.17			
Note: L=large study with at least 250 students; S=small study with less than 250 students; E=Experimental; C=Control; SAT-9=Stanford Achievement Test 9th Edition; TOWRE=Test of Word Reading Efficiency; CTBS=Comprehensive Test of Basic Skills; ITBS=Iowa Test of Basic Skills; SAT=Scholastic Achievement Test; SESAT=Stanford Early School Achievement Test; GORT=Gray Oral Reading Test; FL=Free/reduced-price lunch; W=White; AA=African American; H=Hispanic; ELL=English language learner.										

Table 3: Instructional Process Programs in Beginning Reading										
Study	Design Large/Small	Duration	N	Grade	Sample Characteristics	Posttest	Effect Size by Subgroups/Measure	Decoding	Comprehension	Overall Effect Size
Cooperative Learning Programs										
Classwide Peer Tutoring										
Greenwood et al. (1989)	Randomized Quasi- Experiment (S)	4 years	6 schools (3E, 3C) 123 students	1-4 (same students)	High-poverty schools in Kansas City, KS	MAT		--	+0.57	+0.57
						Grade 4	+0.57			
						Grade 6 (2 year followup)	+0.55			
PALS										
Mathes & Babyak (2001)	Randomized Quasi- Experiment (S)	14 weeks	20 classes (10E, 10C) 110 students (61E, 49C)	1	Schools in Florida 63%W, 36%AA	Woodcock		+0.72	+0.41	+0.61
						Word Identification	+0.51			
						Word Attack	+0.92			
						Passage Comprehension	+0.41			
Calhoon et al. (2006)	Randomized Quasi- Experiment (S)	20 weeks	3 schools 6 classrooms 78 students (41E, 37 C)	1	Students taught in English in a majority- Hispanic school in NM; 75% FL, 32%W, 68%H	DIBELS		+0.29	--	+0.29
						Nonsense Word Fluency	+0.58			
						Oral Reading Fluency	+0.00			
Calhoon et al. (2007)	Randomized Quasi- Experiment (S)	16 weeks	3 schools 6 classrooms 76 students (43E, 33 C)	1	Students in border schools in 2-way bilingual program; 88% FL, 79% H, 21% W, 28% ELL	DIBELS		+0.33	--	+0.33
						Nonsense Word Fluency	+0.51			
						Letter Naming Fluency	+0.20			
						Oral Reading Fluency	+0.29			
Mathes, Torgesen, & Allor (2001)	Matched (S)	16 weeks	24 classes (12E, 12C) 140 students (84E, 56C)	1	Schools in the southeast; 65%W, 32%AA	Woodcock		+0.49	+0.56	+0.50
						Word Identification	+0.39			
						Word Attack	+0.59			
						Passage Comprehension	+0.56			
Mathes et al. (1998)	Matched (S)	16 weeks	20 classes (10E, 10C) 96 students (48E, 48C)	1	Schools in southeastern city	TERA-2	+0.48	+0.38	+0.37	+0.37
						Woodcock				
						Word Identification	+0.21			
						Word Attack	+0.54			
						Passage Comprehension	+0.37			
Phonological Awareness Training Programs										
Lie (1991)	Randomized Quasi- Experiment (S)	2 years	10 schools 208 students (Sequential analysis: 52 students Positional analysis: 60 students Control: 96 students)	1-2	Schools in Halden, Norway	Norwegian Reading Test				
						End of grade 1	+0.34	--	+0.30	+0.30
						End of grade 2	+0.30			
Lundberg, Frost, & Petersen (1988)	Matched (L)	3 years	390 students (235E, 155C)	K-2	Schools in rural Denmark	End of grade 1	+0.40	--	+D540.48	+0.48
						End of grade 2	+0.48			

Schneider, Küspert, Roth, Visé, & Marx (1997) (Study 1)	Matched (L)	3 years	23 classes (11E, 12C) 371 students (205E, 166C)	K-2	Schools in rural Germany	German Reading Test			-0.19	-0.19
						End of grade 1	+0.29			
						End of grade 2	-0.19			
Schneider, Küspert, Roth, Visé, & Marx (1997) (Study 2)	Matched (L)	3 years	18 classes (11E, 7C) 346 students (191E, 155C)	K-2	Schools in rural Germany	German Reading Test		--	+0.33	+0.33
						End of grade 1	+0.53			
						End of grade 2	+0.33			
Blachman et al. (1999)	Matched (S)	1 1/2 years 11 weeks in K-1, 1 year in 1st grade	4 schools (2 E, 2 C) 128 students (66 E, 62 C); One year follow-up: 106 students (58 E, 48 C)	K-1	High-poverty schools in Syracuse, NY	Woodcock Word ID	+0.28	+0.33	--	+0.33
						Decoding of Real Words	+0.64			
						Decoding of Non-Words	+0.74			
						1 year follow-up				
						Woodcock Word ID	+0.31			
						Decoding of Real Words	+0.34			
						Decoding of Non-Words	+0.36			
Phonics-Focused Professional Development Models										
Sing, Spell, Read, Write										
Jones (1995)	Matched (S)	7 months	4 classes 97 students (50E, 47C)	1	School in Appalachian Mississippi; 55%FL, 78%W, 22%AA	Gates MacGinitie Reading Comprehension		--	+0.21	+0.21
Early Reading Research (ERR)										
Shapiro & Solity (2008)	Matched (S)	2 years	12 schools (6E, 6C) 434 students (235E, 199C)	K-1	Schools in England	British Achievement Scales Word Reading	+0.62			+0.54
						NFER				
						Word Reading	+0.52			
						Accuracy	+0.59			
						Comprehension	+0.41			
Reading and Integrated Literacy Strategies (RAILS)										
Stevens et al. (2008)	Matched (S)	2 years	3 schools (2E, 1C) 237 students (112E, 125C)	K-1 1-2	Schools in small city in PA. 71% FL, 94%W	MAT		--	+0.41	+0.41
						K-1	+0.39			
						1-2	+0.43			
Ladders to Literacy										
O'Connor (1996)	Matched (S)	1 year	4 schools (2E, 2C) 105 students (64E, 41C)	K-1	Large urban district, 46%AA, 51% W	Woodcock Letter-Word ID	+0.92	+0.20	--	+0.20
						Woodcock Letter-Word ID (1-year followup)	+0.02			
						Woodcock Word Attack (1-year followup)	+0.38			

Orton-Gillingham										
Joshi et al. (2002)	Matched (S)	1 year	4 schools 56 students (24E, 32C)	1	High-poverty schools in the Southwest. 81% FL, 53% minority	Woodcock Word Attack	+0.28	+0.28	+0.58	+0.43
						GMRT	+0.58			
Other Professional Development Models										
Four Blocks										
Scarcelli & Morgan (1999)	Matched (S)	1 year	55 students (25 E, 30 C) in 4 classes (2 C, 2 E)	1	Title I school in Virginia Beach, VA	GMRT		--	+0.56	+0.56
Note: L=large study with at least 250 students; S=small study with less than 250 students; E=Experimental; C=Control; MAT=Metropolitan Achievement Test; TERA=Test of Early Reading Ability; TOWRE=Test of Word Reading Efficiency; DORT=Durrell Oral Reading Test; GMRT=Gates-MacGinitie Reading Test; FL=Free/reduced-price lunch; W=White; AA=African American; H=Hispanic.										

Table 4: Curriculum + Instructional Process Programs in Beginning Reading										
Study	Design Large/Small	Duration	N	Grade	Sample Characteristics	Posttest	Effect Sizes by Subgroup/ Measure	Decoding	Comprehension	Overall Effect Size
Success for All										
Borman et al. (2007)	Randomized (L)	3 years	35 schools 2108 students (1085 E, 1023 C)	K-2	Title I schools throughout the U.S., 72%FL, 57% AA, 31% W, 10% H	Woodcock		+0.28	+0.21	+0.25
						Word Identification	+0.22			
						Word Attack	+0.33			
						Passage Comprehension	+0.21			
Correnti (2009)	Matched (L)	4 years	115 schools (30E, 85C) 3783 students (831E, 2932C)	K-3	High poverty schools in 17 states. 69% FL, 52% AA, 22%W, 19%H, 6% Asian	Terra Nova				+0.43
Madden et al. (1993); Slavin et al. (1993)	Matched (L)	5 years	10 schools (5 E, 5 C) 1925 students (890 E, 1035 C) 5 cohorts (1st grade in experiment 1 year, 2nd grade 2 years, etc.)	1-5	African American students in high- poverty schools in Baltimore, MD	Average of Woodcock, DORT, and CTBS		+0.55	+0.39	+0.46
						1st grade	+0.55			
						2nd grade	+0.32			
						3rd grade	+0.49			
						CTBS				
						4th grade	+0.45			
Nunnery et al. (1996)	Matched (L)	2 years	64 schools (46E, 18C) 1555 students	1-2	High-poverty schools in Houston, TX 79%FL, 52%H, 48%AA	Average of Woodcock and DORT		+0.09	+0.02	+0.05
						First cohort (Gr. 2)	-0.08			
						Second cohort (Gr. 1)	+0.09			
						Spanish (Gr. 1)	+0.21			
Livingston & Flaherty (1997)	Matched (L)	2 years	6 schools (3 E, 3 C) 3 cohorts: English speakers (272E, 184C) Spanish bilingual (87 E, 93 C) Other ESL (80 E, 112 C)	1, 2	High-poverty multilingual schools in Modesto and Riverside, CA	Average of Woodcock and DORT across cohorts		+0.49	+0.49	+0.49
						English-Dominant	+0.28			
						Spanish Bilingual	+0.77			
						ESL	+0.43			
Ross et al. (1996)	Matched (L)	1 year	4 schools (2 E, 2 C) 540 students (169 E, 371 C)	1	Mostly Hispanic schools in Amphitheater District near Tucson, AZ	Average of Woodcock and DORT		+0.62	+0.33	+0.47

Jones et al. (1997)	Matched (L)	3 years	2 schools (1E, 1C) 498 students (339E, 159C) Cohort 1: 172 students (113E, 59C) Cohort 2: 157 students (109E, 48C) Cohort 3: 169 students (117E, 52C)	3 Cohorts: Cohort 1: K-3 Cohort 2: K-2 Cohort 3: K-1	High-poverty AA schools in Charleston, SC	Woodcock		+0.23	+0.02	+0.27
						Kindergarten	+0.98			
						Woodcock and DORT				
						1st grade	+0.20			
						SAT or BSAP				
						1st grade	-0.03			
						SAT				
						2nd grade	+0.10			
						SAT				
						3rd grade	-0.06			
B. Chambers et al. (2005)	Matched (L)	1 year	8 schools (4E, 4C) 455 students (311E, 144C)	K-1	Mostly Hispanic communities in the US	Woodcock Reading Mastery Test		+0.20	+0.21	+0.20
Ross, Smith, & Casey (1994)	Matched (L)	3 years	2 schools (1 E, 1 C) 370 students (223E, 147C) 3 cohorts	1-3	Rural schools in Caldwell, ID	Average of Woodcock and DORT		-0.10	-0.11	-0.10
Ross & Casey (1998b)	Matched (L)	2 years	8 schools (3E, 5C) 356 students (151E, 205C)	K-1	High-poverty schools in Ft. Wayne, IN; 75%FL, 45% minority	Woodcock		+0.33	+0.17	+0.25
						Word Identification	+0.22			
						Word Attack	+0.45			
						Passage Comprehension	+0.14			
						Durrell Oral	+0.21			
Muñoz & Dossett (2004)	Matched (L)	3 years	6 schools (3 E, 3 C) 349 students (217 E, 132 C)	K-3	High-poverty schools in Louisville, KY	CTBS		--	+0.15	+0.15

Dianda & Flaherty (1995)	Matched (L)	2 years	6 schools (3E, 3C) 319 students (131 E, 188 C)	1	Mostly Hispanic students in schools in California 72% FL, 42%H, 34%W 32%ELL	Woodcock		+0.41	+0.45	+0.42
						Letter-Word Identification	+0.46			
						Word Attack	+0.36			
						Passage Comprehension	+0.45			
						Woodcock (all three measures)				
						English speakers	+0.55			
						Spanish bilingual	+0.84			
						Spanish dominant	+0.82			
						Non-English speakers	+0.11			
Ross & Casey (1998a)	Matched (L)	1 year	4 schools (2 E, 2 C) 316 students (156 E, 160 C)	1	Suburban schools in Portland, OR	Average of Woodcock and DORT		0.00	-0.02	-0.01
Ross, Smith & Casey (1997)	Matched (L)	2 years	Cohort 1: 135 students (94E, 41C) Cohort 2: 146 students (106E, 40C)	K-1 1-2	High-poverty schools in Clarke Co., GA	Average of Woodcock and DORT		+0.22	+0.08	+0.15
						1st grade	+0.27			
						2nd grade	+0.03			
Ross et al. (1995)	Matched (L)	3 years	2 schools 3 cohorts 251 students Cohort 1: 59E, 47C Cohort 2: 54E, 20C Cohort 3: 45E, 32C	K-4	Title I schools in Ft. Wayne, IN	Average of Woodcock and DORT		+0.09	-0.09	0.00
						2nd grade	+0.10			
						3rd grade	-0.10			
						4th grade	0.00			
Casey et al. (1994)	Matched (S)	1 year	3 schools (2 E, 1 C), 189 students (116 E, 73 C)	1	High-poverty African American schools in Memphis, TN	Woodcock		+0.78	+0.53	+0.65
						Word Identification	+0.52			
						Word Attack	+1.03			
						Passage Comprehension	+0.63			
						Durrell Oral Reading	+0.42			

Ross, Smith, & Bond (1994)	Matched (S)	2 years	Cohort 1: 4 schools 133 students (65E, 68C) Cohort 2: 2 schools 46 students (20E, 26C)	K-1 1-2	African American students in high- poverty schools in Montgomery, AL	Average of Woodcock and DORT		+0.76	+0.47	+0.62
						K-1 Cohort	+0.39			
						1-2 Cohort	+1.15			
Smith et al. (1994)	Matched (S)	4 years	2 schools 142 students (74E, 68C) 4 cohorts	1-4	High poverty AA school in Memphis	Average of Woodcock and DORT/Gray		+0.55	+0.65	+0.60
						1st grade	+1.15			
						2nd grade	+0.08			
						3rd grade	+0.56			
Wasik & Slavin (1993)	Matched (S)	3 years	2 schools (1 E, 1 C) 3 cohorts	1-3	High-poverty schools in Charleston, SC, 40% FL; 60%AA	Average of Woodcock and DORT		+0.39	+0.39	+0.39
						1st grade	+0.20			
						2nd grade	+0.67			
						3rd grade	+0.30			
Slavin & Madden (1991)	Matched (S)	2 years	2 schools (1 E, 1 C) 108 students (58 E, 50 C)	1-2	Small rural town in Maryland 40%FL, 50%AA 50%W	Average of Woodcock and DORT	+0.02	+0.02	+0.02	+0.02
						CTBS	+0.02			
Wang & Ross (1999a)	Matched (S)	1 year	4 schools (2 E, 2 C) 97 students (50 E, 47 C)	1	High-poverty schools in Little Rock, AK	Average of Woodcock and DORT		+0.20	+0.39	+0.30
Wang & Ross (1999b)	Matched (S)	1 year	2 schools (1 E, 1 C) 82 students (43 E., 39 C)	1	High-poverty mostly Hispanic schools in Alhambra Distict near Phoenix, AZ	Average of Woodcock and DORT		+0.15	+0.16	+0.15
Slavin & Madden (1998)	Matched (S)	3 years	50 students (21 E, 29 C)	1-3	Spanish-dominant LEP students in Philadelphia, PA who had transitioned to English classes	Woodcock		+0.36	-0.07	+0.22
						Word Attack	+0.65			
						Word Identification	+0.06			
						Passage Comprehension	-0.07			

Direct Instruction										
Kennedy (1978)	Matched (L)	4 years	2216 children (1161E, 1055C)	K-3	High poverty schools in NY, RI, IL, & MS	MAT Reading Comprehension		--	+0.07	+0.07
Mac Iver et al. (2003)	Matched (L)	4 years	12 schools (6 E, 6 C) 275 students (171 E, 104 C)	K-3	High-poverty schools in Baltimore, majority African-American	CTBS		--	+0.13	+0.07
						Reading Comprehension	+0.13			
						Vocabulary	0.00			
Grant (1973)	Matched Post Hoc (S)	2 years	2 schools 78 students (39E, 39C)	K-1	High-poverty African American students in WI	Wisconsin Reading Skill Development		+0.84	--	+0.84
						Long Vowels	+0.64			
						Base Words	+1.33			
						Dale Johnson Word Recognition	+0.54			

Note: L=large study with at least 250 students; S=small study with less than 250 students; E=Experimental; C=Control; DORT=Durrell Oral Reading Test; CTBS=Comprehensive Test of Basic Skills; SAT=Scholastic Achievement Test; BSAP=Basic Skills Assessment Program; MAT=Metropolitan Achievement Test; FL=Free/reduced-price lunch; W=White; AA=African American; H=Hispanic; ELL=English language learner.

Table 5: Kindergarten-Only Studies								
Study	Design Large/Small	Duration	N	Grade	Sample Characteristics	Posttest	Effect Sizes by Subgroup/Measure	Overall Effect Size
Reading Curricula								
Superkids								
Borman & Dowling (2007)	Matched (L)	1 year	43 classes (23E, 20C) 750 students (400E, 350C)	K	Schools throughout the U.S., 52% minority	SAT-10		+0.20
						Sounds and Letters	+0.25	
						Word Reading	+0.14	
						Sentence Reading	+0.22	
D'Agostino (2009)	Matched (L)	1 year	43 classes (21E, 22C) 750 students (302E, 368C)	K	Schools throughout the U.S., 47% FL, 38% minority	ITBS		+0.23
						Word Analysis	+0.41	
						Reading Words	+0.23	
						Reading Comprehension	+0.24	
						Vocabulary	+0.02	
Vovager Universal Literacy								
Frechtling et al. (2006)	Matched (L)	1 year	8 schools (4 E, 4 C) 398 students (202 E, 196 C)	K	African American students in 8 urban schools	Woodcock		+0.67
						Word ID	+0.21	
						Word Attack	+1.11	
Hecht (2003)	Matched (S)	5 months	3 schools (1 E, 2 C) 213 students (101 E, 112 C)	K	High-poverty schools in Orlando	Woodcock		-0.02
						Word ID	-0.10	
						Word Analysis	+0.10	
						DIBELS		
						Nonsense Word	-0.07	
Instructional Technology								
Waterford Early Reading Program								
Paterson et al. (2003)	Matched (L)	1 year	16 classes (8E, 8C)	K	High-poverty community in western New York	Clay Word Recognition Test		0.00
Tracey & Young (2006)	Matched (L)	1 year	15 classes (8E, 7C) 265 children (151E, 114C)	K	High-minority northeastern community	TERA-2		+0.47
The Literacy Center (LeapFrog)								
RMC (2004)	Randomized Quasi- Experiment (S)	1 year	6 schools 258 students (126E, 132C)	K	High-poverty schools in Las Vegas, 30% ELL	Gates MacGinitie	+0.17	+0.14
						DIBELS	+0.12	
Destination Reading								
Barnett (2006)	Matched (L)	1 year	15 classes (8E, 7C)	K	High-poverty high- minority community in FL	DIBELS	-0.56	-0.53
						Clay Word Recognition Test	-0.47	
						Dolch	-0.56	

Writing to Read								
Stevenson et al. (1988)	Matched (S)	1 year	241 students (86E, 155C)	K	African American students in Washington, DC	MAT Reading		+0.35
Granick & Reid (1987)	Matched (S)	1 year	2 schools 73 students (37E, 36C)	K	High-poverty African American schools in Baltimore	MAT		+0.02
Instructional Process Programs								
Ladders to Literacy								
Fuchs et al. (2001)	Randomized (L)	20 weeks, with a one- year followup	8 schools (4E, 4C) 404 students 3 groups: Ladders only: 11 teachers, 136 students; Ladders + PALS: 11 teachers, 133 students; Control: 11 teachers, 135 students	K	Title I and non-Title I kindergartens in Nashville, TN	Ladders to Literacy Group		+0.21
						End of kindergarten		
						Woodcock		
						Word Attack	+0.17	
						Word ID	-0.25	
						Followup to Fall of first grade		
						Word Attack	+0.38	
						Word ID	+0.05	
						Ladders + PALS Group		
						End of kindergarten		
						Word Attack	+0.36	
						Word ID	+0.25	
						Followup to Fall of first grade		
						Word Attack	+0.41	
						Word ID	+0.43	
O'Connor (1999)	Matched (L)	1 year	17 classes (9E, 8C) 318 students (192E, 89C)	K	Rural midwestern district, 100% White	Woodcock Johnson Letter Word ID		+0.43
						Typical children	+0.33	
						At-risk children	+0.68	
Little Books								
Phillips et al. (1990)	Randomized Quasi- Experiment (L)	1 year	18 classes 309 students	K	Urban and rural schools in Newfoundland, Canada	MET		+0.22
						School + home	+0.33	
						School only	+0.19	
						Home only	+0.14	

Note: L=large study with at least 250 students; S=small study with less than 250 students; E=Experimental; C=Control; ITBS: Iowa Test of Basic Skills; SAT-10: Stanford Achievement Test; TERA=Test of Early Reading Ability; MAT=Metropolitan Achievement Test; FL=Free/reduced-price lunch; W=White; AA=African American; H=Hispanic; ELL=English language learner.